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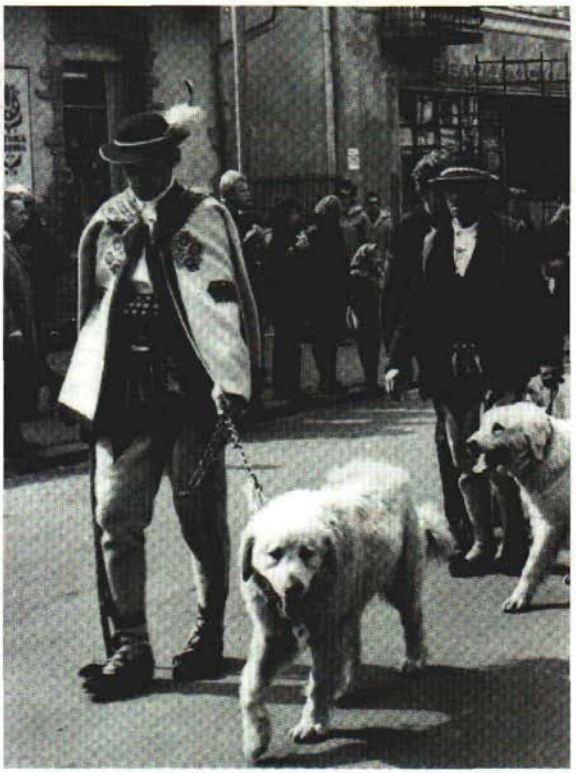

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Cover Picture: Polish peasants parading sheepdogs in the Tatras Highlands (See Article: *The Body Height of the People of Poland in Historical Perspective*)

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Biodemographic Aspects of the Physical Development of Neonates

Kálmán Joubert
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Sarolta Darvay and Rószsa Ágfalvi
National Institute of Child Health, Budapest
Éva Gárdos
Central Statistical Office, Budapest

The level of physical development at birth may markedly affect the survival chances of the neonate. In 1993, 12.5 out of one thousand live-born infants died before reaching the age of one year in Hungary. 62% of the 1458 newborn babies that died in infancy belonged to the "low birth weight category" (possessing a body weight below 2500 g). 53% of neonates that died in infancy lived as few as 6 days. In 1993, 41% of the newborn babies that died during the first six days of life had a body weight less than 2500 g.

In 1993, 8.6% of neonates were of low birth weight. This percentage is still markedly higher than the Western European average.

Besides body weight, the physical developmental level of the neonate can also be characterized by body height and circumference of the head. A distinct correlation was established between the physical developmental level of neonates at birth and the body weight gain of the mother during pregnancy (Gardos and Joubert, 1993). Changes in these variables were studied in correlation to some demographic and social characteristics of the mothers.

Materials and Methods

The data included in the analysis were derived from the antenatal (pregnant mother) study phase of the research project entitled "Health and demographic study of pregnant mothers and infants" launched in 1979 on a national representative sample. The analysis included data from 5761 pregnant mothers.

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The data included in the analysis were as follows:

- body weight, body height and head circumference of neonates at birth;
- the child's place in the order of births;
- the mother's body weight gain during pregnancy;
- the mother's age, educational level (based on the number of years completed), smoking habits, and the risks to which she was exposed during pregnancy.

Results and Evaluation

Age of the mother

Statistical data show that, during their propagative years, it is between 20 and 29 years of age that women are most suited to giving birth to a child.

The first figure presents the neonate's body length (height) at birth as a function of the mother's age. It can be observed that from the youngest age group up to mothers aged 25-29 years the average body length of neonates increases in a statistically significant degree (the difference between the averages was studied by the "t" test). The body length of children delivered by 30-34 year old mothers is somewhat lower, and the greatest body length can be observed for children delivered by mothers aged 35 years or more. However, neither the decrease nor the repeated increase is statistically significant.

The tendency outlined above can be observed also for the head circumference of neonates studied as a function of the mother's age (Fig. 2). The reason why 35-year-old and older mothers deliver babies with the most developed heads may be that women giving birth at an age over 35 years are at risk; precisely because of that, they usually receive stricter care and control during pregnancy both at prenatal care units and at home.

Figure 3 shows maternal body weight changes during pregnancy of women giving birth at different ages. It can be observed that the youngest age group exhibits the highest body weight gain and that the degree of body weight gain during pregnancy gradually decreases with increased age. A statistically significant difference was demonstrable only between the average values obtained in the last three age groups.

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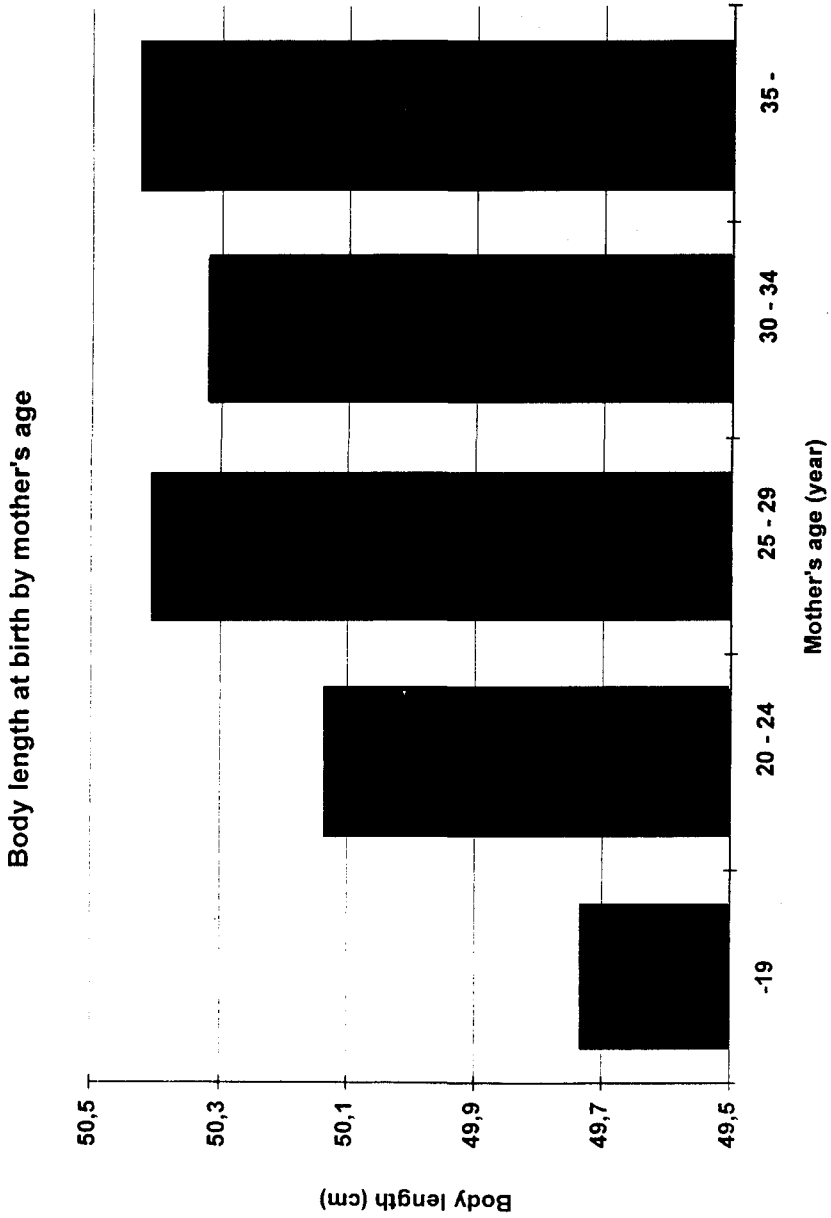

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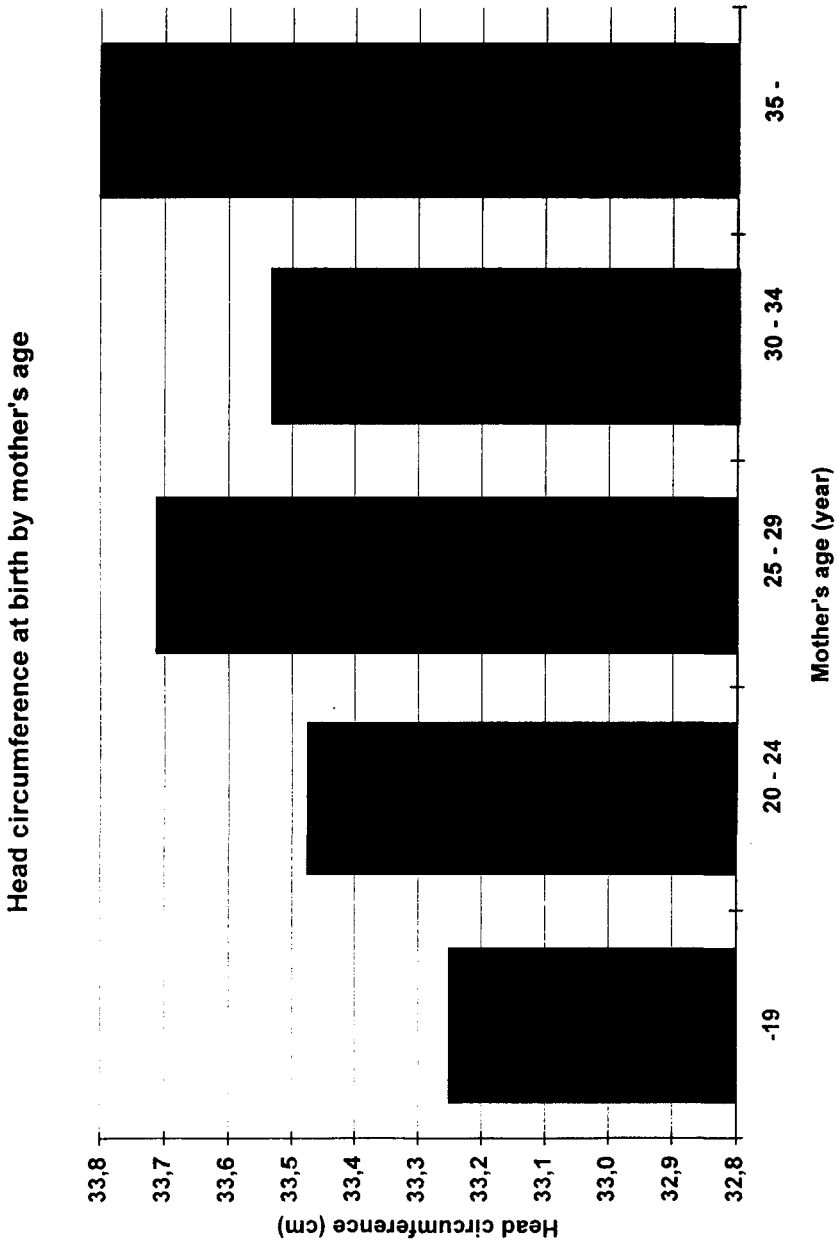

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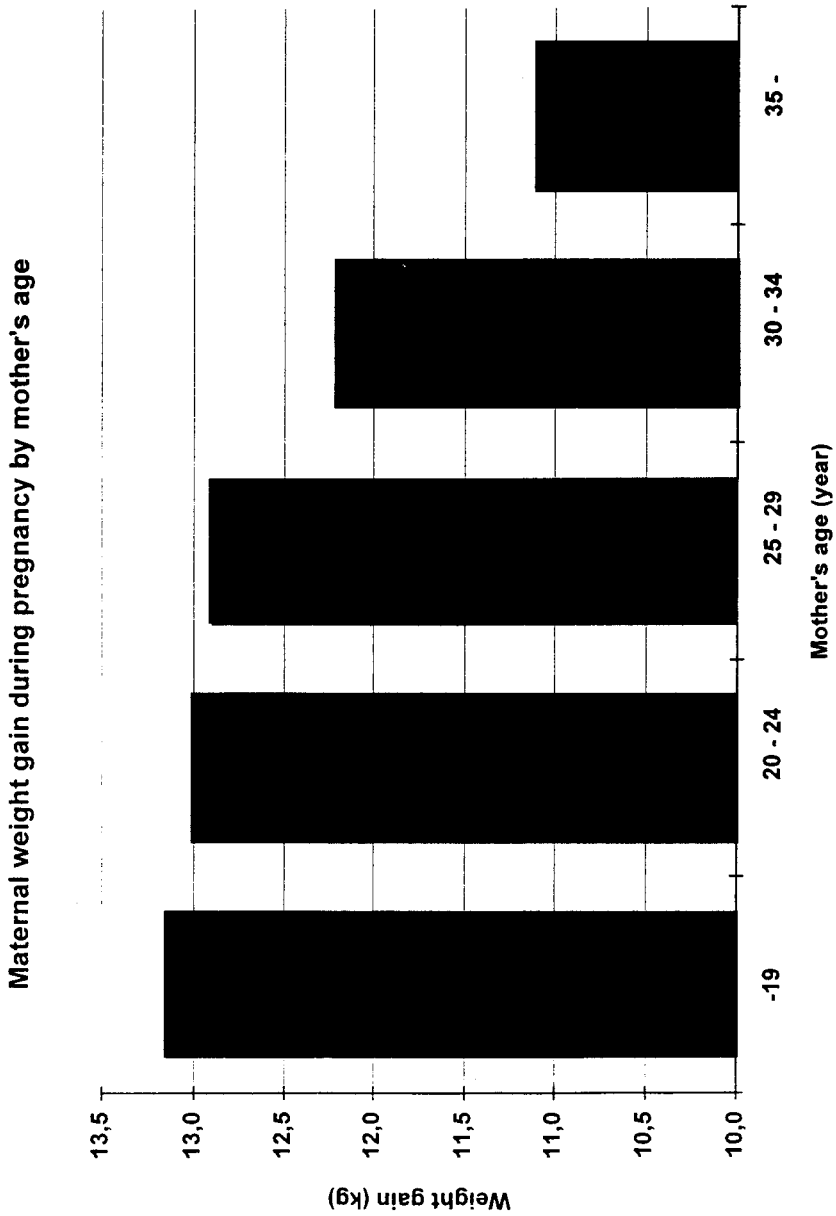

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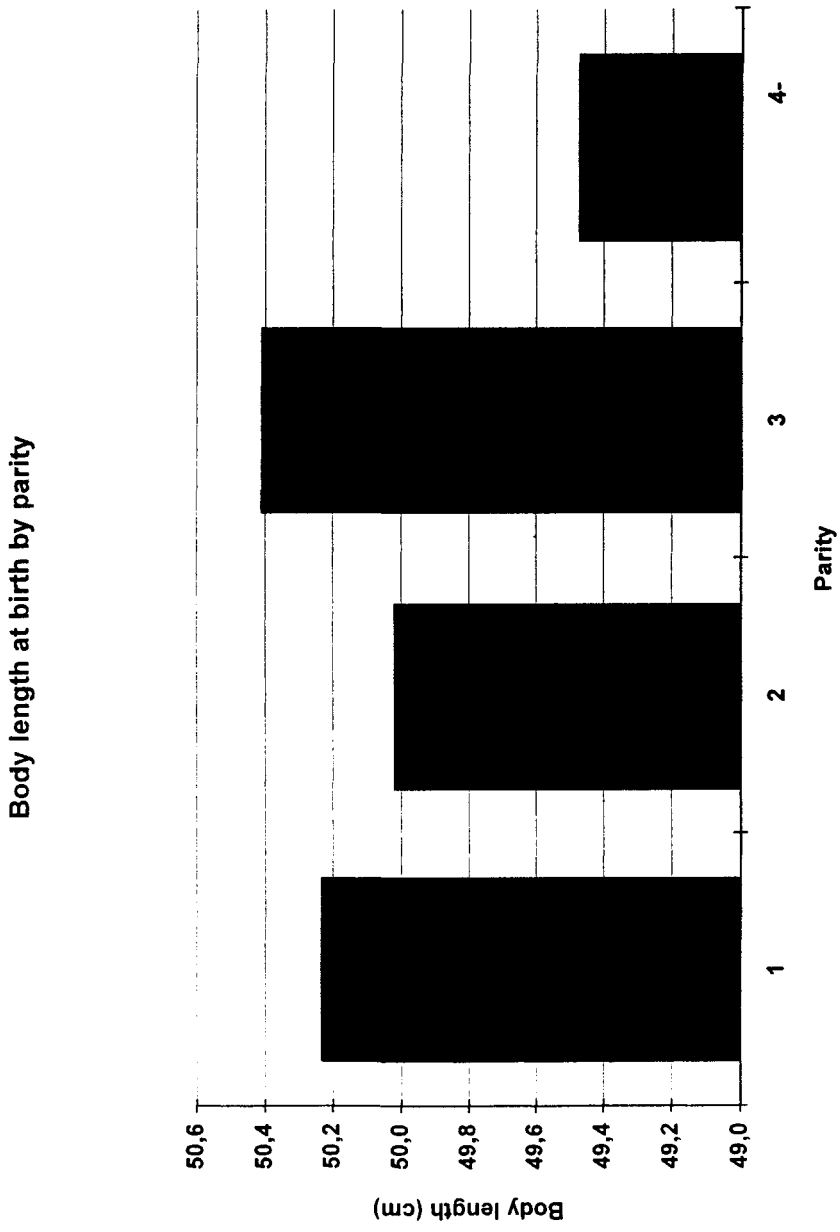

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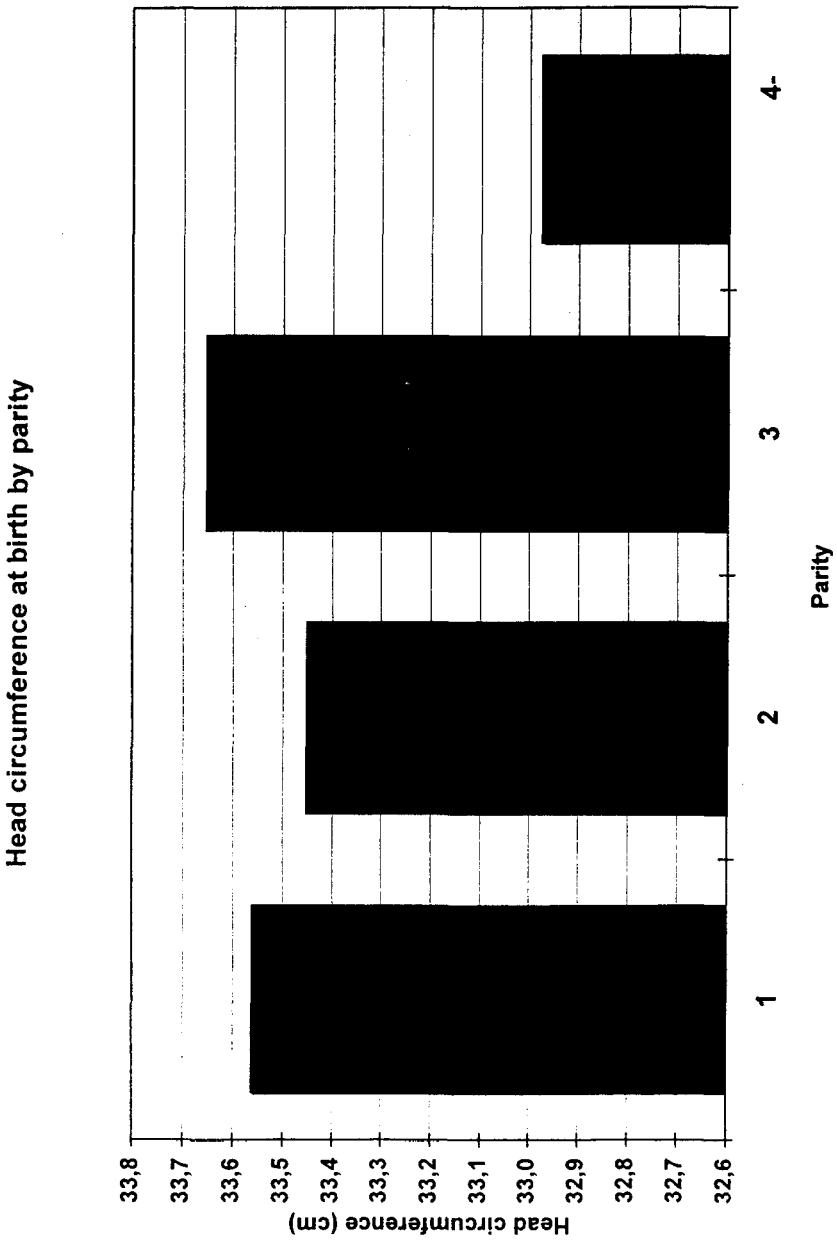

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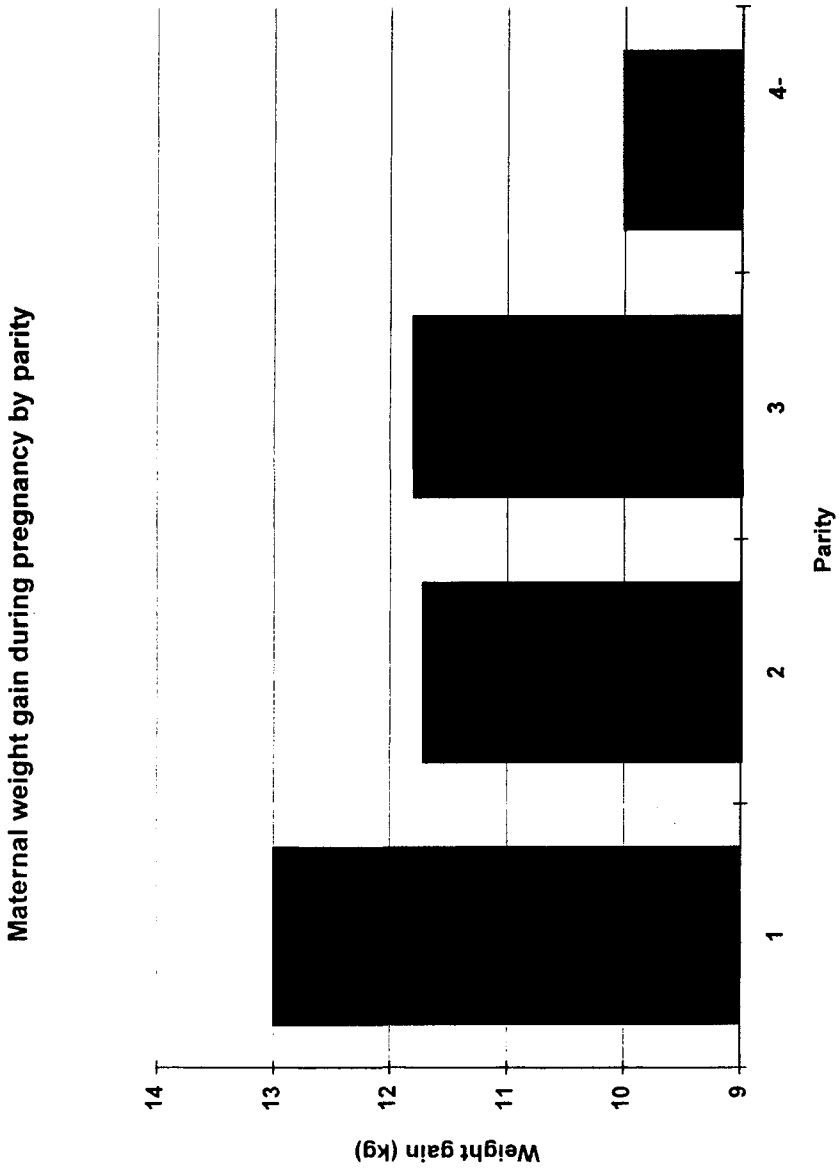

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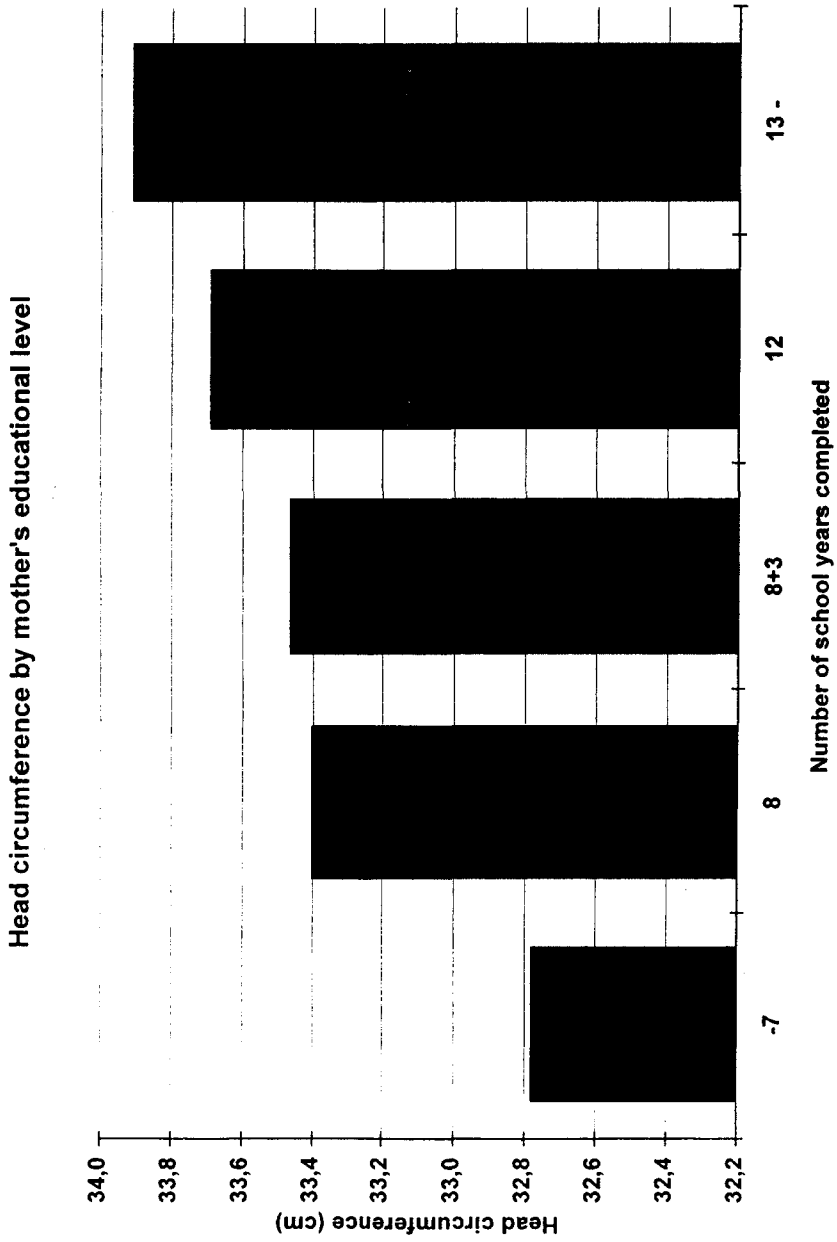

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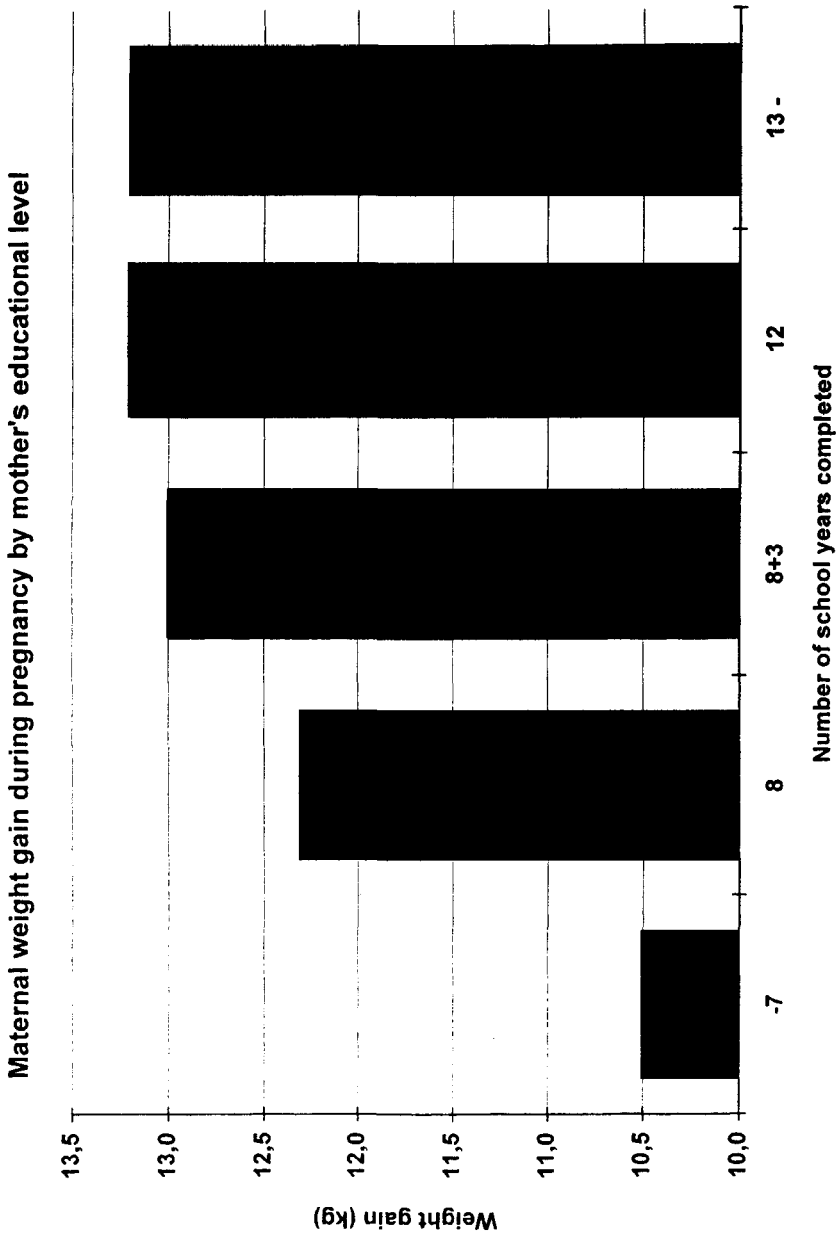

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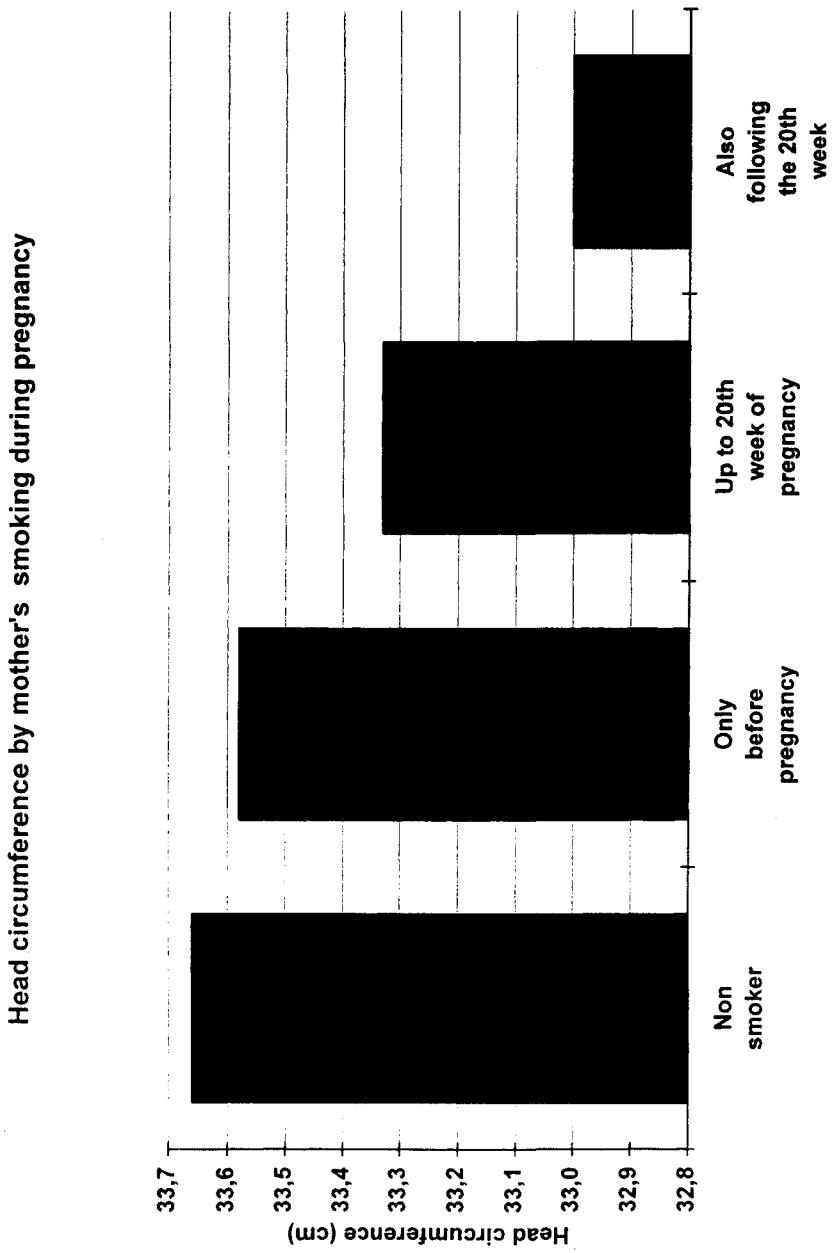

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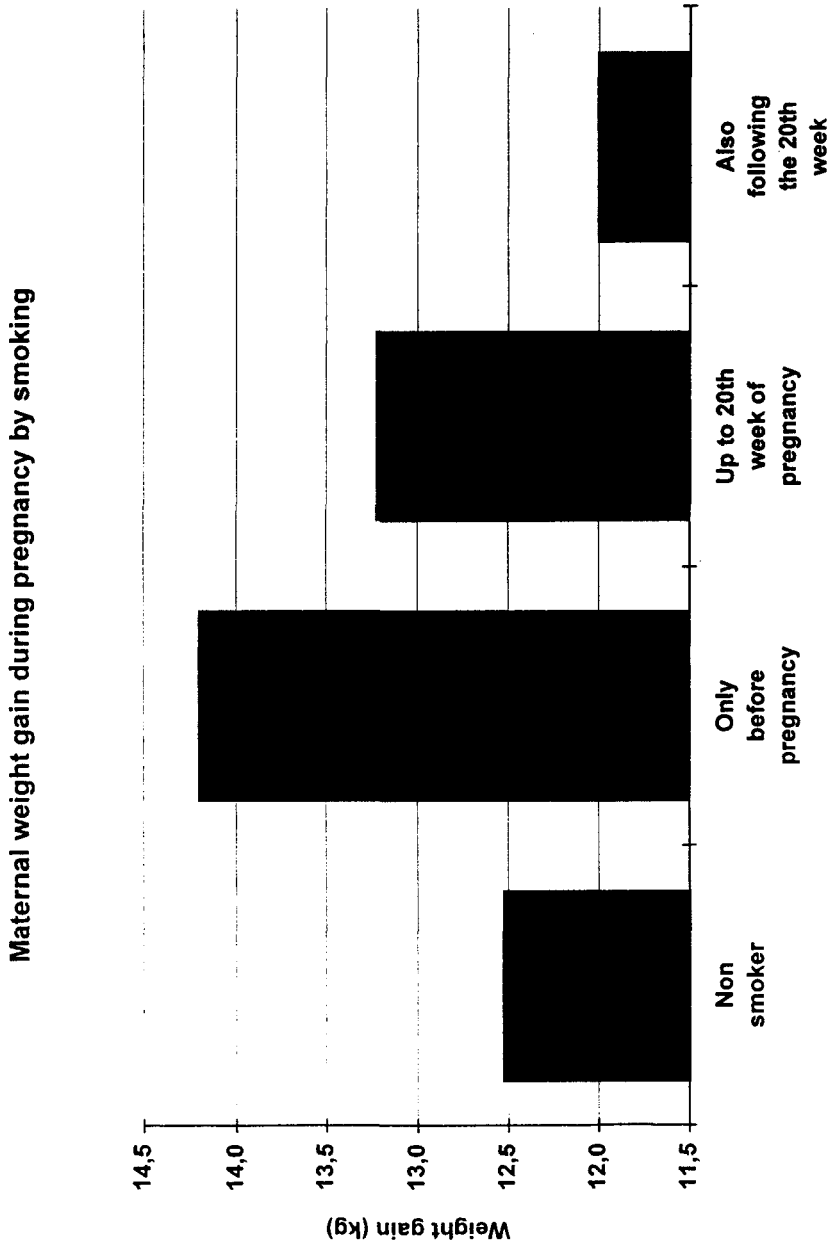

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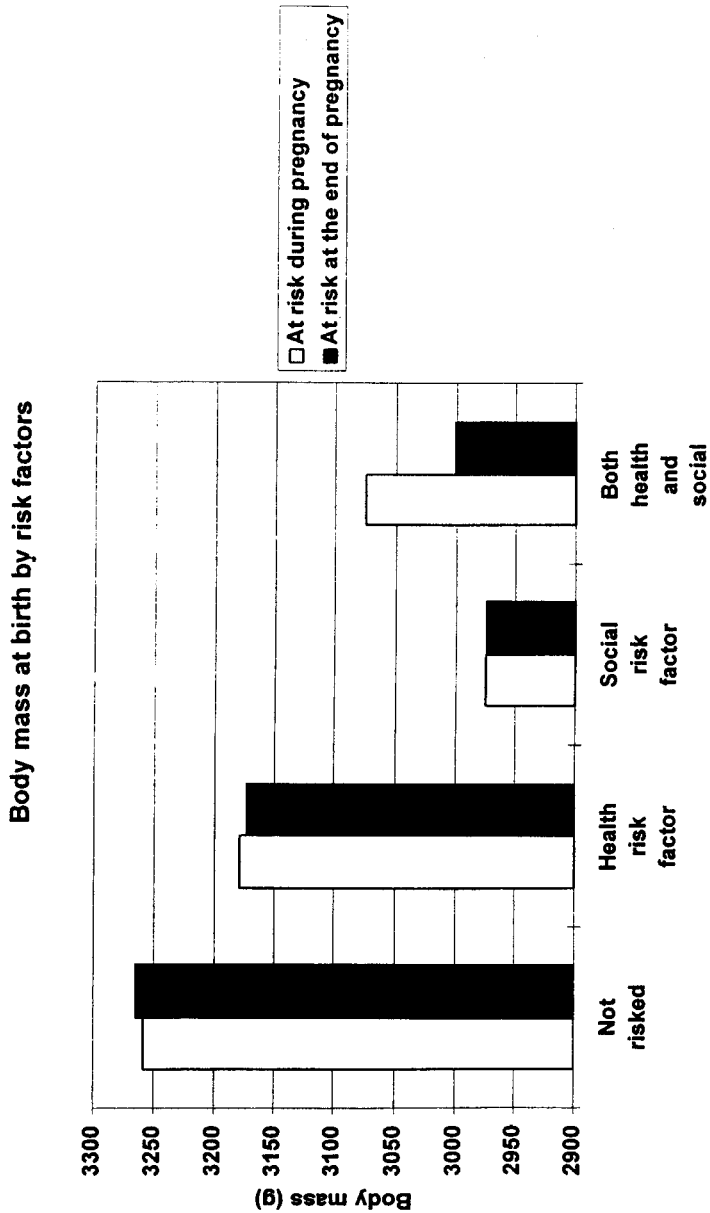

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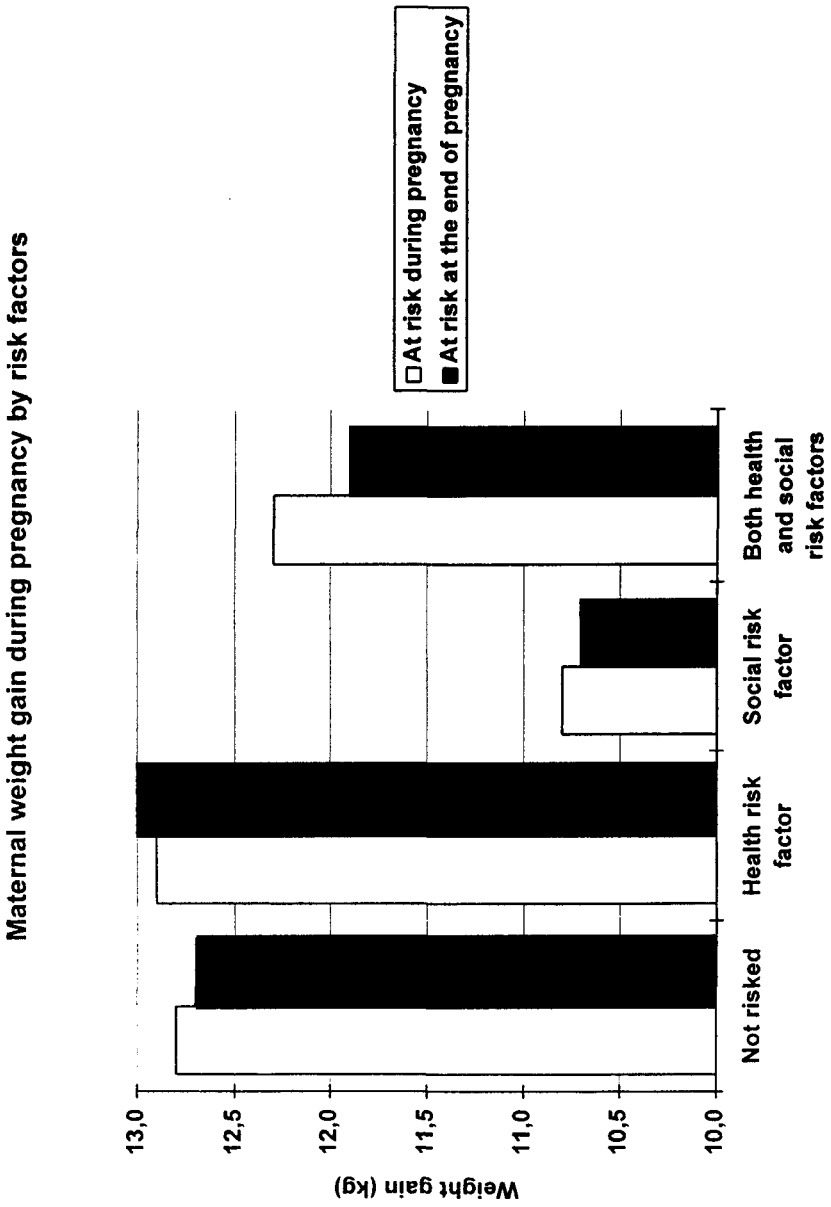

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Order of birth

Figure 4 represents the body height of neonates as a function of their place in the order of birth. First-born infants tend to be bigger than second-born ones; the difference is statistically significant at a level of 5%. Third-born children had the biggest body height at birth; however, due to the low number of cases studied (n = 99) the difference was not significant. Fourth-born infants and those born even later are the lowest. This may partly be attributed to the fact that this collective category includes also 5th, 6th, 7th etc. born infants, representing a physical burden to the mother.

Studying the neonates' head circumference as a function of their rank in the order of birth (Fig. 5), the same tendencies can be established as those described for body length.

When examining the mother's body weight gain during pregnancy (Fig. 6) as a function of the neonate's rank in the order of births it can be observed that the highest maternal body weight gain occurs during the first pregnancy. Young women assume their final "womanlike" shape after their first pregnancy and delivery, both in terms of their uterus and fat pads. During pregnancy with the second child, a significantly lower maternal body weight gain occurs. During the third pregnancy, the mother's body weight gain is insignificant. In the case of the fourth and later pregnancies, there is also significantly less body weight gain than during the earlier pregnancies. This is probably due to the same factors which apply to body length.

The Mother's Educational Level

Changes in the child's head circumference in relation to the mother's educational level are shown in Fig. 7. From the figure it is clear that the neonate's head circumference increases with an increase in the mother's educational level. By comparing groups formed on the basis of educational level, statistically significant differences in neonate head circumference were found only between mothers having completed less and 8 years of education and those who had completed 12 or more years.

Changes in the mother's body weight gain during pregnancy in relation to educational level are shown in Fig. 8. The mother's body weight gain during pregnancy changes with increasing educational level in a manner practically identical with the tendency outlined

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above. However, here the body level weight gain of mothers having completed years or more shows a highly significant difference from that of mothers who had completed less than 7 years, as well as from that of mothers who had completed 8 years and had attended a vocational training school. The differences between groups at the highest educational levels were not statistically significant.

The Mother's Smoking Habits During Pregnancy

Smoking during pregnancy is widely known to exert an unfavorable effect on the physical development of neonates. The effect of smoking on the child's head circumference at birth is illustrated in Fig. 9. It can be clearly seen in the figure that the longer the mother smoked during her pregnancy, the smaller the child's head circumference. The difference in neonate head circumference between mothers not smoking at all and those who had smoked only before their pregnancy is statistically not significant. At the same time, there is a statistically significant difference in the average head circumference of neonates between all the other groups.

Interesting observations can be made if we study the mother's body weight gain during pregnancy as a function of her smoking habits during that period (Fig. 10). A unique finding is that the 12.5 kg. body weight gain of mothers who did not smoke at all is significantly less than the weight gain of mothers who had smoked though only before their pregnancy. Of mothers who smoked during pregnancy, body weight gain during pregnancy significantly decreased parallel to the increased degree of smoking. Mothers who customarily smoke often give up on becoming aware of their pregnancy. As a result their appetite increases, partially because they may respond to the change of habit by eating more.

Risks During Pregnancy

Figure 11 shows the average birth weight of children as a function of the risks that the mother is exposed to during her pregnancy. It can be clearly established that, unlike mothers who had been exposed to risks either during or at the end of their pregnancy, those mothers who were who were not exposed to any risks during their pregnancy delivered the children of the highest birth weight.

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Mothers exposed to health risks either during or at the end of pregnancy delivered children of much lower average birth weight. In both risk categories, children with the lowest birth weight were born to mothers exposed to risks of an exclusively social nature. Even mothers exposed to both health and social risks delivered children of higher birth weight than those exposed only to social risks, although that difference was statistically not significant.

Studying the mother's body weight gain during pregnancy as a function of the different risk types (see Fig. 12), it can be seen that a statistically significant difference existed only between mothers exposed to social risks and other groups. These results also indicate the significant relationship between the mother's social status and the level of physical development of the newborn.

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Body Height of the People of Poland in Historical Perspective

Henryk Stolarczyk and Andrzej Malinowski
University of Łódź

Stature is one of the more common features investigated by physical anthropologists with regard to inter-generational or phylogenetic differences as well as to physical development or ontological changes. The record of changes in body height through different generations and between different populations can reveal much of both environmental and genetic interest. The genetic factors determining body height also well known, but the study of environmental influences on stature is also revealing, particularly in those countries where socio-environmental factors are continuously changing and affecting the course of physical growth.

The first statistics concerning body height values in Poland originate only in the modern period. J. Śniadecki in the nineteenth century drew attention to morphological differences between representatives of the various professional and social groups of people of that time. When Poland was under Austrian, Prussian and Russian domination, the body height of people was dramatically decreased, leading some researchers to predicate the thesis of a biological degeneration of the Polish nation. After the ineffective national insurrections in 1830 and 1863 this thesis was regarded as significant evidence of the biological deterioration of the nation. A number of Polish physicians analyzing data concerning the body height of conscripts held this view until W. Wścieklica (1888) determined that height was affected not only by inheritance, but also by climatic and especially economic conditions. He showed that the decline in the stature of Polish conscripts resulted from the poorer conditions under which the Poles were then living.

The leading Polish anthropologist of the first half of the twentieth century, J. Czekanowski (1930), pointed out that provincial Polish physicians had early recognized the biological effects of malnutrition. He wrote, "Although stature is genetically determined

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and evidences racial differentiation, it shows great plasticity reflecting an influence of environment. The environment causes an acceleration as well as retardation of the individual's development which is, as one can suppose, not fully related to age increase. Owing to it the arithmetical means of body height constitutes a very a sensitive indicator of any improvement or worsening of the living condition of a people."

The study of the social stratification of the Polish people has been pursued at various anthropological centers. However, a special contribution to this matter was made by T. Bielicki (1981, 1989) who correlated the body height of conscripts with their social status. Among others, he evidenced that body height, as one of the elements of physical growth estimation, establishes a very sensitive "barometer" of social stratification. In his opinion, anthropologists possess precision instruments for the study of social processes and can supply valuable information to sociologists and demographers as well as to institutions responsible for planning and realizing social policy.

Changes of the body height of a population in historical perspective are an interesting element of research on variations in socio-economic and cultural relations which influence the health of a population. Research along these lines into the prehistoric and historical condition of the population of Poland was carried out particularly by J. Ostrowska and T. Ziółkiewicz (1938), A. Wiercińska (1973), J. Gładykowska-Rzeczycka (1974), H. Stolarczyk and W. Lorkiewicz (1993), and A. Śmiszkiewicz-Skwarska and A. Malinowski (1993).

The data obtained on the base of literature (see Table 1 and Fig. 1) allow us to observe the record of body height in Poland from the Neolithic Age up to the present. These data show a decrease in the body height of people living in the territory now identified as Poland from the Neolithic Age until the La Tene period, which was probably related to, partially at least, climatic changes. In the Roman period the body height again began to increase, a trend which persisted into the late mediaeval period.

It is worth mentioning that historical sources inform us about the abundance of food in ancient Poland, estimating for example the consumption of meat at approximately 70 kg yearly (Kuchowicz 1972). This situation broke down dramatically in the modern period

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Table 1. Body height of people from actual territory of Poland from Neolith Age till the present time.

Chronological period	Males		Females	
	x	N	x	N
Neolith Age, 5200-1900 B.C.	167.2	50	156.5	34
Bronze Age, 1900-650 B.C.	165.3	40	155.2	39
Hallstatt period,650-400 B.C.	165.6	35	154.1	29
La Tene period, 400 B.C. -outset of A.D.	164.4	60	154.6	46
Roman period, outset of A.D. - IV-th century	166.8	22	157.4	18
Early Middle Age, VI-th century - half of XIII-th century	165.7	685	153.6	494
Late Middle Age, half of XIII-th century - XV-th century	167.7	362	155.2	204
Modern period, XVI-th - XIX-th century	166.9	322	155.2	217
Conscripts, interwar period [1]	165.0-166.9	-	-	-
Kashubian women from Żarnowiec (1938)[2]	-	-	158.7	99
Males 20-40 years old (1955-1956)[3]	168.2	7557	-	-
Males - towns (1955-1956)[4]	167.47	9610	-	-
Males - villages (1955-1956)[4]	166.96	4197	-	-
Females - towns (1955-1956)[4]	-	-	156.05	9625
Females - villages (1955-1956)[4]	-	-	155.17	4427
Conscripts (1965)[5]	170.5	-	-	-
Conscripts (1976)[5]	173.1	-	-	-
Conscripts (1981)[5]	175.1	-	-	-

1. A.Wiercińska (1973)
2. A.Wrzosek (1938)
3. C.Brajczewski (1978)
4. S.Górny (1972)
5. T. Bielicki, A.Waliszko, S.Górny, J.Kubica (1990)

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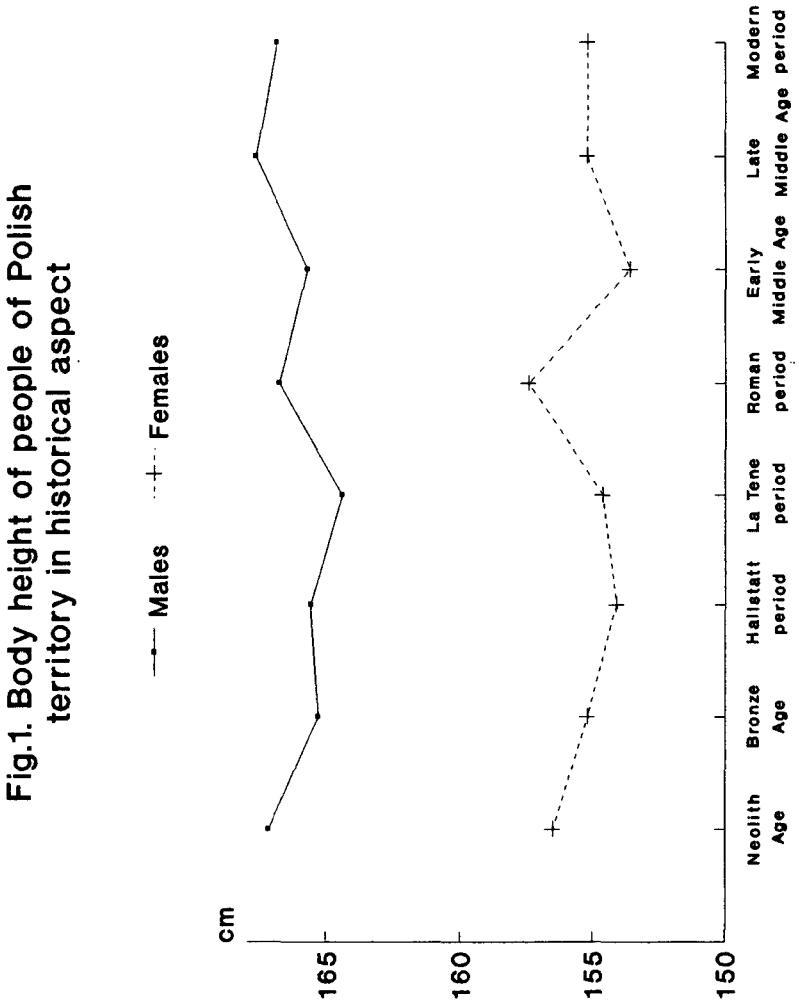

Fig.1. Body height of people of Polish territory in historical aspect

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along with a general deterioration of the economy. According to Kuchowicz, the territory of Poland revealed a steady increase in population until the end of the Middle Ages, followed by a decrease until the beginning of the seventeenth century at which time the population remained constant at between 9 to 10 million inhabitants until the beginning of the nineteenth century.

Social Differentiation

The great social differentiation has its reflex in morphological characterization of Polish society. Z. Kuchowicz called the attention of historians to this fact. In his opinion Poland had undergone a rapid biological degeneration of its human stock. Poor diet was causing a marked deterioration in stature. Up to the time of the abolition of villeinage the peasants lived in tragic conditions. Insufficient hygiene coincied with malnutrition. It is worth mentioning also that in the eighteenth century the Polish climate became more continental, characterized, among other features, by very severe winters.

Economic history data indicates that the average consumption of meat by the country people was as low as 10 kg. per year. As a result this class reveals very short stature from the seventeenth to the nineteenth century, and Kuchowicz estimated the stature of the male peasants of this period at approximately 160 cm., and that of women at 150 cm. The fairly numerous class of nobles was distinguished by superiod physique, their average height being estimated by Kuchowicz as around 174 cm. Manorial male servants averaged 164 cm. and female servants 153 cm. One can deduce from this that, as noted by observers in the nineteenth century, the deterioration in the biological condition of Poles was linked to social status.

It is also necessary to remember that the Napoleonic wars and various national insurrections and wars caused substantial political migrations, chiefly of the noble class to France and England, as well as the deportation and compulsory resettlement of sections of the population in Siberia. Also the wars of the twentieth century resulted in economic hardship and very heavy politically-enforced movement of physically healthy people out of the country.

Regional Variation

The stature of the population of this area also evidences certain

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regional differentiation. From the Bronze Age down through the entire historical period the peoples of Pomerania were characterized by their taller physical stature. A slightly diminished values of this trait can be found in Wielkopolska and Kujawy, but still smaller body height is observed in Malopolska and Silesia. This geographical gradient of decreasing body height values from the north towards the south was connected with reduction in this geographical transition of the frequency of the Nordic element in favor of more Lapponoid and Mediterranean elements in the south.

Unfortunately insufficient data relating to the historical period has been collected to enable us to correlate the regional or racial differences with the data relating to social stratification. However, it is apparent that the body height values presented here are the result of influences of both a genetic and an environmental nature. The racial component is well appreciated, but when studied in time perspective, the effect of general living conditions is also seen to be a factor of importance.

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Some Comments on the Evolution of Hominid Intelligence

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An interesting hypothesis has recently been proposed by R. Lynn (1992) on the evolution of intelligence as measured by I.Q. He bases his principle on the fact that when populations move to a new niche the cognitive demands for survival may increase.

On a macro-evolutionary scale when a population (a species or sub-species) changes its environmental niche, it responds to the new challenges by selective changes favoring those characteristics which are better adapted to the new environment. In mammalian and primate history, one of the major responses to changes in environment was the enlargement of the brain in relation to body size. This change was defined by Jerison (1973) as the encephalization quotient.

Greater brain size seems to be associated with greater intelligence in the evoutionary history of hominids. This facilitates the population's ability to deal with the cognitive demands of the new niche.

The first major encephalization occured at the beginning of the evolution of mammals, approximately 220 mya. Occupying a nocturnal niche in which they slept during the day and foraged during the night, they were obliged to integrate visual, auditory, and olfactory information with a consequent enlargement of the brain.

A second major encephalization occured around 50 mya, when the Primates really emerged, probably with *Purgatorius*. The Primates evolved rapidly following the extinction of the Dinosaurs, again changing their niche, becoming diurnal and arboreal.

In order to mate and raise offspring in the arboreal environment they were obliged to develop a social structure. This social structure also required an increase of intelligence which promoted a new enlargement of the brain (Chiarelli, 1992).

Their food was almost exclusively vegetable matter, supplemented to some extent with insects. A few secondary terrestrials, such as

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baboons and chimpanzees, sometimes kill small mammals for food, but meat has never been a substantial part of their diet (Strum 1991).

Moreover, the Primates evolved in tropical and subtropical climates and, being plant eaters, were unable to invade temperate regions as they could not find sufficient to eat during the winter when plant food was unavailable.

When, in the mid-Miocene, approximately 16 mya, there was a warm period, two groups of Primates, *Pliopithecus* and *Dryopithecus*, migrated into Eurasia. They survived until the cooling at the end of the Miocene, about 14 mya, when they became extinct, except in tropical Southern Asia where they evolved into Orangutans (Pickford, 1968).

A third major jump in brain size and intelligence occurred with the appearance of the genus *Homo* between 4 and 1 mya. There is, however, a long history behind this third encephalization.

Around 15 mya, in the tropical African continent, some Primates differentiated into several species of Apes, and around 12 mya the African tropical forest niche started to deteriorate as the climate became drier and much of the forest was replaced by bush and grasslands. The result was that some of these found themselves in an increasingly open grassland environment where they had to adapt to a life which required greater intelligence for survival.

Around 5 mya ago some evolved into *Australopithecus* with an upright posture and a greater encephalization quotient. The Australopithecines continued to live largely on plant food. The wear of their teeth shows that they subsisted mainly on leaves and fruits (Grine and Kay, 1988), probably eating also tubers, grass seeds and insects (Isaak, 1978; Parker and Gibson, 1979).

During the last 3 to 2 millon years hominids ancestral to modern man evolved through stages equivalent to *Australopithecus, Homo habilis*, and *Homo erectus* up to our own species, *Homo sapiens*. During this evolutionary phase the size of the brain increased from approximately 500 cc. to 1500 cc. This is an increase by a factor of three in 2 million years or less, which is no more than 100 thousand generations. This is the largest quantitative evolutionary change ever in the history of mammals!

The selective pressures of the new niches resulting in an increase in brain size were the need to acquire an erect posture, a

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high degree of cooperative socialization, and tool-making and tool-using, which induced the acquisition of language as a way of communication.

The Australopithecines were replaced by *Homo habilis* and later by *Homo erectus*, some of which continued to live in tropical and subtropical Africa and continued to feed on plants (Stahl, 1989), and in that location there was no reason for them to switch to meat. Temperatures in tropical Africa only vary between 20-25° C throughout the year. More than 100 food plant species are available throughout the year including berries, fruits, bulbs and tubers during the wet season and shoots and leaves during the dry season. Insects such as ants and termites are also available.

A transformation in food habits also started at this stage of hominid evolution. Large animals hunted and killed by lions and leopards were occasionally scavenged by these early hominids for their bones which they broke to extract the marrow. Lions and leopards were unable to remove it from the bones or the brain from the cranium. Early meat eating by hominids probably started as scavenging of those parts which lions and leopards were unable to exploit.

About one million years ago *Homo erectus* populations were present in Africa, Europe, and Asia. The problems of survival in the cold and temperate climates of Eurasia and the problems of overwintering were solved by the addition of animal protein and fat to their diet. Hunting therefore became a continuous activity of our ancestors, especially during the periodic glaciations.

The final stage of hominid evolution from *Homo erectus* to *Homo sapiens* has recently been reviewed, and two main theories survive: a) the single origin theory which states that the evolution from *H. erectus* to *H. sapiens* took place in the rift valleys of East Africa around 200 thousand years ago, and that from here the ancestors of *Homo sapiens* migrated into Eurasia and replaced other populations of *H. erectus* in those regions; and b) the multiregional theory which states that *Homo erectus* populations in Africa and Eurasia evolved in parallel into *Homo sapiens* over the course of approximately the last half million years (Wolpoff, 1989).

Most fossil data and the revision of the previous supporting

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molecular information tend to support the multiregional theory. A gradual transition from *H. erectus* into *H. sapiens* therefore seems to have occurred during the last half million years. However, further advances in DNA research indicate the possibility of an older date for the presumed common origin of living hominids, which if established would explain much of the fossil evidence which indicates separate regional evolution over several hundred thousand years.

Hominid Evolutionary Summary

Homo sapiens in Eurasia had to adapt to the problems of survival in cold temperatures and subarctic environments, while those in Africa evolved in tropical, or subtropical, environments.

The presence of different niches stimulated Lynn (1992) to advance the thesis that the two niches exerted different selective pressure for the improvement of intelligence in the two groups of peoples: Caucasoids and Mongoloids versus Congoids and Capoids. These are the reasons for differences in I.Q. and in the type of intelligence. This hypothesis followed Jerison's principle that the cognitive demands of a new niche exerts a selective pressure for increase in intelligence throughout evolutionary history.

Among contemporary hunter-gatherers the proportions of food obtained by hunting and by gathering varies according to the latitude (Lee, 1968).

People in tropical and subtropical latitudes are largely gatherers, while people in arctic and sub-arctic environments rely almost exclusively on hunting and fishing because plant food is unavailable, in the winter months, except for some berries.

For hunting large herbivorous animals, human hunters need to manufacture a variety of tools from stone, wood, and bones, apart from inventing and implementing a trap system.

When these hunters had to kill a large herbivore they have to skin and butcher it into pieces suitable for carrying back to the base camp, and for this it is necessary to manufacture a variety of sophisticated cutting tools.

Moreover, for effective hunting, a highly organized social group and sophisticated vocal communication are needed for the planning and execution of the hunts.

The problem of starting fires and keeping these alight must have

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been considerably more difficult in Eurasia than in tropical Africa. The same must have been true for the problem of constructing adequate clothing and shelter.

The food-gathering peoples of the equatorial or sub-equatorial regions when collecting their food have only to distinguish and recognize its species in the different seasons, a simple memory test. By contrast, the manufacture of sophisticated tools, the hunting of large animals to obtain food, and the production of adequate shelters, clothing and fires, would favor selectiob for both high verbal and high visuospatial intelligence. Without entering into any debate on the significance or extent of differences in the I.Q. of existing human populations, there remains without doubt an eco-ethological, evolutionary element in the qualitative differences in the intelligence of human populations.

The Neolithic transition occurred in the Near East, in China and in Central America independently, and more or less at the same time. The domestication of plants and animals permitted larger settled communities which allowed a general increase in population. Concentrations of people encouraged the development of specialized skills. This new and more interdependent social interaction produced intellectual and technological advances which brought about the development of written language, the system of arithmetic, and the understanding of nature as something separate from ourselves.

So, following the Jerison principle, brain enlargement and intelligence progressed as a result of constant interaction with the environment. But what are the mechanisms at the cell level which can explain this interactive evolution? What is the neurophysiological basis for explaining such progressive change?

In more recent years there has been a reevaluation of the concept that nerve cells can be modified in their structure during their activity. The influence of the environment in transformation of the brain is more efficient in young individuals where plasticity of neurons is higher than in any other period of life.

Different experiments have demonstrated that rats raised in an environment rich in stimulation show clear increases in neuroanatomical parameters when compared with ones raised in a poor environment. Rats exposed to a complex environment when young have a higher brain weight both absolutely and relative to body weight. Their

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histochemical parameters are also higher than in rate kept in a poor environment and they are also richer in their dendritic connections (Chiarelli, 1984).

These studies show:

1) that the environment can significantly modify the brain.

2) that the brain of young mammals is anatomically malleable.

In our species, neurological structures remain immature until about 12 years of age. It is therefore reasonable to think that the environment could play an important role in changing these neuronal components during the developing phase of the brain in Man.

We have both direct and indirect evidence for the existence and location of neuronal centers of language. We know that human infants deprived of verbal contact during the first eight years of their life may never learn to speak (*enfant sauvage*), and that many vocalizations are learned in the early infant stage, sounds which cannot easily be produced later (e.g. the "r" for the Japanese and Chinese).

We know, moreover, that in the brain of song birds some neuron nuclei which are involved in the production of sounds enlarge more in males than in females (Mazzi and Fasolo, 1977). They therefore must be subject to the influence of some hormones (thyroid and testosterone especially), which stimulate some specific types of cells during ontogenesis. Some sexual hormones have, moreover, specific importance in the distribution of synapses and in the architecture of dendrites.

On the basis of these experiments and other data, Jacobson (1970) assumed that there exist two types of neurons.

(1) The first group of neurons formed during the initial stage of development are strictly conditioned by the genome and the group consists of macroneurons (afferent and efferent).

(2) The second group of neurons, however, undergo modifications during the entire period of postnatal development and are under a less strict genetic control. They consist predominantly of interneurons with short axions. The survival of these neurons is conditioned by the functional connection of the synapses which need to be kept in continuous exercise.

We shall know more about the neuroanatomical process as rapid progress is made with Magnetic Resonance Imaging (MRI),

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Positron Emission Tomography (PET), and Computer Assisted Tomography (CAT) research, but it seems clear that significant modifications in the form and in the number of the neurons can occur relatively late in the ontogenesis of an organism.

The basic program of the neuroanatomy of the cortex is genetically determined, but as Jacobson early indicated (1970) the final organization of the complex neuronal connections, and therefore its functions, is affected by the neuronal activity manifest during development. This is one way to explain how new information may have stimulated increases in brain capacity during evolution. The individual with more plastic neurons, which captured more information during early life, had a better chance to survive and reproduce more efficiently, thereby giving the genotype more chance to spread; a Darwinian mechanism which should make us reflect not only on the value of education but on the changing relationship between education and fertility.

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p-Cultures, *r*-Cultures, and the Need to Research Group Survival Techniques

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In our search to aid evolution, eugenics is apt to confine itself too much to inter-individual survival. In any society, individual *A* having some survival advantage over individual *B* determines the direction of group movement.

But we have to remember that the ultimate survival is that of a group or species. We need citizens who are not only outstandingly able, but who can fit in with other citizens to help the survival of the group.

Indeed, when we ask what is the direction of genetic progress we have to admit that we really do not know what is progress. Consequently the only progressive organization of life is to have dozens of human groups, each judged by its capacity to survive. If we ask the question, for example, should society permit homosexuality, the only solution is have some societies that do and some societies that do not – and wait patiently for the answer. Selection toward greater longevity, for example, is almost necessarily more dependent on the effect it has on group survival than on individual difference survival, because the markers for successful aging appear only after the end of the reproductive period. Yet our superiority to the higher apes in longevity is almost as great as our superiority in intelligence,

In *Beyondism* (1987) I have suggested what an ideal scheme would be for ensuring human evolution. It consists of many independent groups cooperating in survival competition, each according to its preferred racial and cultural movements. We may be surprised to find that natural history has already provided us with such an experimental design in the form of some 150 existing independent nations. But we have to think out the most effective, practical and humane way for conducting such a vast experiment.

It is evident that the most objective observation we can have of

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group "success" must be the survival of the group. But in history that has occurred only in fragmentary survivals, e.g. Rome, Greece and Persia, and through warfare and genocide which we find morally repellent. There must be ways of detecting when a society is headed for non-survival without having to wait for the awful end. There are cultural borrowings, migrations, alliances, and countless other interactions of groups about which scientific generalizations could be discovered.

Political science, sociology and economics might be expected to offer support to an International Research Cente concerned with the study of evolutionary survival techniques, but at present they are only nibbling at the problems. *In How Good is Your Country?* (1994a) I discovered what has been called the *Culture Pressure Factor.*[1] It was obtained empirically by factor analyzing social indices recorded on some 100 or more countries. This was the first attempt to reduce the profiles of nations to scores on basic, comparable factors. It yielded familiar dimensions in the social sciences such as degree of industrialization, moral level, size, affluence, etc. as well as some ten new dimensions not previously visible to the unaided sociological eye.

The chief social indices loaded in the Cultural Pressure Factor are:

Frequency of cities over 20,000
High number ofindustrial strikes
High ratio of tertiary to primary occupations
High frequency of participation in wars
High creativity in science and technology
High suicide rate
Frequency of Nobel Prizes per 100,000
High ratio of late to early marriages

This discovery led to the theory of two expressions of the frustration imposed by a complex culture upon an inadequate biological readiness for the given culture. These are called reality

[1] See also "The Culture Pressure Factor and the Culturo-Genetic Lag" in *The Mankind Quarterly*, Vol. 35, Nos 1 & 2, 1995.

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cultural adjustment, *r-culture*; or personal expression of biological drives, *p-culture*. Both are expressions of the degree of *genetic-lag* of the biological, racial make-up of the population behind the demand of the complex level of culture.

Examples of *p*-culture expression are sports, theater, religion, and hyperactivity, though religion is a mixed *p* and *r* expression when it aids the realistic acceptance of a practical ethical system. These *p*-culture expressions are simple, mainly undirected expressions of emotionality denied by the culture to primitive inheritances. They thrive in animism and superstition and in all biological drives granted insufficient expression by cultural complexity.

r-culture, on the other hand, represents the degree of success of sublimation (Freud) of drives into concrete, realistically helpful cultural adjustments. It expresses itself in the success of humanity in controlling its environment in the interest of survival.

p-culture is inevitable as a random attempt to express contained emotions, and occasionally it produces *r*-culture results, e.g. the indirect effect of sports upon community health. Eugenicists attempt to reduce *p*-technique waste and loss by lessening the gap between the biological adequacy of a group and the oppressive level of the cultural demands.

The cultural pressure factor which we have discovered is therefore a measure of the "genetic gap". It should show itself both in loadings on *r*-culture variables, which increase the cultural level, and on *p*-culture variables which show the discrepancy between biology and culture (genetic lag). There is room for immediate research on new cultural pressure variables, since we were forced to operate in the initial discovery on what social indices had been recorded for other, varied purposes (Cattell, 1994).

The role of an international research center would be, as far as interaction of countries are concerned, a purely advisory one. If its advice were followed it could help to prevent wars, it could recommend on world disease, population pressures, political clashes, and signs of impending downward paths to destruction. It would be a collection of "doctors of culture" and it would have to develop broader views and more powerful research methods than our social sciences currently possess.

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Professor Shockley's Experiment

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One of the experiments that Professor Shockley suggested to the National Academy of Sciences at its Spring Meeting of 1968 ("Proposed research to reduce racial aspects of the environment-heredity uncertainty") has been conducted; the results are in, but you won't hear about it in the mainstream media. If recent history is a guide we will first wish the results the death of silence. Pretend they do not exist. If that fails, then yell and scream and call names. Outrage at insensitivity; heap acrimony upon *ad hominem* (see Pearson, 1991). The unfortunate truth that no one was particularly hoping for is completely at odds with the revealed wisdom of the egalitarian left: when black babies are adopted into middle class bright white families they grow up to function intellectually and emotionally like blacks.

Professor William Bradford Shockley (1910-1989), you will recall, was awarded the Nobel Prize for Physics in 1956. That was for research conducted at Bell Telephone Laboratories where he was director of solid-state physics research. It was in 1948 that his three-man research team created the point contact transistor; Shockley personally invented the junction transistor, the analog and the junction field-effect transistor, thus ushering in the age of solid state electronics. He and his co-workers shared the Nobel Prize. Shockley left the Bell Laboratories in 1958 and in 1963 was appointed to a named chair at Stanford University. From the mid-'60s until his death in 1989 he devoted much of his scientific efforts to questions of heredity, intelligence, and the welfare of western civilization. He spoke out repeatedly against the "entrenched dogmatism" which prevented open discussion and unbiased research concerning some of the most important issues facing our civilization. For his

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humanitarian efforts he was excoriated by the left-leaning press and "politically correct" academic scientists alike (Pearson, 1992). While it has become *de rigueur* to complain about an uninformed and biased media, they merely reflect a deeper problem. The power to destroy civilization lies with the scientists and intellectuals, our modern secular priesthood, who have given up the canons of science – objective observation of the real world combined with honest reporting – in order to accomodate the dogmas of a secular religion. An irrational ideological zealotry that emphasizes the dogmas of socialism at the expense of scientific knowledge has already brought about the downfall of one of the two great superpowers. Can we be far behind if we pervert truth to follow the precepts of the same secular religion?

Roger Pearson has well summarized Shockley's thesis, which scared the political Left. It was simple: intelligence is a quality which is of prime importance to humankind in the struggle to survive - but it is not evenly distributed between individuals and races. The available scientific evidence indicated that the level of an individual's intelligence is predominantly determined by heredity, and also that the less intelligent members of the American population are reproducing more quickly than those genetically better endowed in this vital area of human competency:

> Shockley's attempts to bring these facts to the attention of the public, and his campaign for a top-level, government-funded scientific enquiry into the question of human quality, was anathema to liberals and to those on the political Left. The liberals felt that his ideas challenged the doctrine of equality to which they were wedded, and the political Left quickly recognized that they challenged their traditional argument that poverty was due solely to class (and race) exploitation rather than, as Shockley implied, the low intelligence of the inhabitants of the inner city slums who were unable to find employment they could handle in the increasingly technical world of modern America. (Pearson, 1992, p. 18).

It was in the 1960s that the Great Society's War on Poverty got going, in the 1960s that Arthur Jensen first got into trouble for pointing out that Head Start programs had not been successful in

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raising the intelligence of black youth, and in 1968 that Shockley suggested a "research proposal that might reduce the environment-heredity uncertainty regarding racial differences".

Shockley's Proposal

Shockley told the Academy "I have heard that the drastic environmental change of adoption from a Negro slum into a middle-class New York Jewish family has actually occurred for some 70 orphans."(Shockley, 1968, p. 102). Of Course. The adoption design is the closest that you can come with humans (for ethical reasons) to conventional scientific procedures for separating genetic from environmental causes of the traits of individuals. It's the human analog of the cross-fostering experiment: Take a Pit Bull puppy and have it be raised by a Cocker Spaniel mom (and dad) in a Cocker Spaniel-provided home and social milieu. If the Pit Bull grows up to think like a Cocker Spaniel, or to act like a Cocker Spaniel, then you know that the environment of rearing influenced the traits in question. Now, if the radical environmental change of cross-fostering does not change the Pit Bull into a Cocker Spaniel, then what hope is there for the less drastic and less complete interventions of Head Start and other "enrichment" type programs?

Since 1965 over $5.4 Trillion dollars have been spent in the Great Society War on Poverty (Rector & Lauber, 1995), and we find ourselves bracing for the arrival of the Super Predators (Dilulio, 1995). In the meantime, Shockley's experiment has been conducted, more or less, and the results are in.

Adoption Study

For the experiment we are indebted to the eminent child psychologist Dr. Sandra Scarr (recent President of the American Psychological Society and a Past President of the Behavior Genetics Association, among other accolades), and her colleagues (Scarr & Weinberg, 1976). The experiment began in the early '70s when Scarr and her original collaborator Richard Weinberg were faculty at the University of Minnesota. They have pointed out that "The intellectual and social climate of Minnesota is generally conducive to liberal and humanitarian movements such as interracial adoption" (p.727). In 1966 an influential organization named the Open Door

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Society of Minnesota was formed by adoptive parents of black children. The founding president of the Open Door Society was a leading columnist for a Minneapolis daily newspaper who frequently wrote about his multiracial family. In this auspicious social climate Scarr recruited 101 families that lived within a 150-mile radius of the Twin Cities (Minneapolis-St.Paul) metro area. Many of the participating families were recruited through the Newsletter of the Open Door Society. The 101 families included 321 children who were 4 years of age or older when originally tested in the 1970s. There were 145 biological offspring and 176 adoptees, of whom 130 were black and 25 white. The remaining 21 consisted of children of Asian, American Indian, and Latino ancestry. Further, many of the "black" adopted children could be grouped as to whether they had 2 black biological parents (black/black kids) or one black and one white biological parent (black/white kids). When originally evaluated the average age of the children was seven, and the results were happily reported in many media outlets and reviewed in many standard psychology and child development or educational psychology textbooks. A follow-up study was conducted 10 years later, at an average children's age 17 (Weinberg, Scarr, & Waldman, 1992). Don't expect to see the results of the follow-up study in the textbooks or the mainline liberal media.

National Dilemma

The national dilemma that provides the backdrop for Professor Shockley's experiment is the large gap between black's and white's average intelligence. It is important to note that among serious scholars the IQ gap has never been an issue: It is the reason for the gap – cultural deprivation, genetic differences, etc.– that has been the issue. The racial gap in average IQ is large and important: About 15 points separate the black average of 85 from a white average of about 100. These 15 points represent about one standard deviation of the bell curve of the intelligence distribution. From this it follows that only about 16% of blacks equal or exceed the average of whites, thus by white standards fully 84% of blacks are of below average intelligence. The racial discrepancy is larger the further one gets from the average – blacks are very much over represented among the intellectually disabled and very much under represented among the

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exceptionally gifted. These facts are essentially what is behind the perceived need for affirmative action and other black preferential social policies, although it is generally quite incorrect to mention outside the confines of the ivory tower – as Charles Murray discovered in the firestorm of criticism for having written (with the late Richard Herrnstein) *The Bell Curve*. Faced with the racial gap, as well as a wide range of individual differences within each race, the egalitarian priesthood has waged one of the most successful disinformation campaigns in the annals of modern propaganda. IQ went from being one of the brightest stars in the firmament of applied psychology to being deemed useless, misleading, evily oppressively racist, and even outlawed in many settings. (If the race is important and Cocker Spaniels regularly run substantially faster than do Pit Bulls, then viciously attack the stop watch). Antidotes to the ideological zealotry include *The Bell Curve* (Herrnstein & Murray, 1994), as well as Arthur Jensen's *Bias in Mental Testing* (1980) and Stanley Burnham's *America's Bimodal Crisis* (1993). Of course intelligence is important and of course IQ well predicts performance in many settings.

Childhood Results: Environments Matter [Blacks will be Whites]

Against this anguishing national (and international) backdrop Scarr and Weinberg (1976) reported that when evaluated at an average age of seven, the 99 black and interracial children adopted in the first year of life had average IQ scores of 110. Wonderful. The egalitarian liberals literally jumped for joy. Quickly into virtually all the introductory textbooks in the relevant fields went the findings and the interpretation: Blacks raised in the favorable home and cultural milieu provided by bright middle class white parents not only did well, they actually did substantially better than the national average for whites. Clearly the interpretation was that the abysmal conditions and performance of blacks in general was correctable by the liberal agenda of environmental treatments. Improve the home environments, schools, and general social milieu of blacks and their intellectual performance will substantially benefit. Scarr and Weinberg (1976) interpreted their results thusly: "One reason for the substantial increase in test performance of the black and interracial adoptees is that their rearing environments are culturally relevant to the tests and

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to the school .... [the] black children in this study have been fully exposed to the culture of the tests and the school,"(p. 737). "There is no question that adoption constitutes a massive intervention, as noted earlier, and that it has a favorable impact on IQ" (p. 738). "The major findings of the study support the view that the social environment plays a dominant role in determining the average IQ level of black children" (p. 739). Of such findings and interpretations are myths created and liberal heroes made.

Although not emphasized, usually not even mentioned in the secondary reports, there were disquieting patterns in the data of the seven year olds. And in fairness to Sandra Scarr and Richard Weinberg it should be noted that they presented the data in an apparently unbiased manner; they are of course free to emphasize whatever interpretations they find appropriate for whatever reasons. The final words of their 1976 report are "that both social and genetic variables contribute to individual variation among them" (p.739).

Other critics found in the study results which were interpretable from a genetic perspective. For instance, the adoptees with two black biological parents (b/b kids) averaged IQ of 98.6; for b/w adoptees the value was 109.0, while white adoptees (w/w) had average IQs of 111.5 and the biological offspring of these unusual middle class parents averaged 116. Well. Here we have approximately 13 IQ points difference, not so far different from the 15 points that separates blacks from whites in the general population:

$$[w/w\ 111.5] - [b/b\ 98.6] = 12.9$$

Give the b/b a dose of white genetic parentage (b/w) and the average IQ goes up about 10 points. Raised in a white family environment so advantageous that the children born to those white families average an IQ of 116, b/b adoptees only manage an average of 98.6. Of such politically incorrect observations are doubts made. Well, answered the authors, in effect, no single experimental study is perfect in all respects and this one is no exception. There were unfortunate confounding variables in the data that could perhaps have been responsible for the discrepancies. For example, b/b kids tended to have been placed for final adoption somewhat later than others, thus perhaps early perinatal experiences were somehow

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detrimental to IQ, or, perhaps "expectancy effects" were at play and parents adopting b/b kids didn't expect as much of them as from b/w or w/w kids. The possibilities for equivocation are seemingly endless. But, however, it seemed clear that the b/b value of 98.6 was higher than the black population average of 85, and 98.6, by golly, is awfully close to the general population average value of 100. Bottom line for the interpretations widely accepted from the study conducted at average age seven: Environments matter and "good" environments like those provided by bright white middle class parents increased the IQs of black children. In other words, Pit Bull puppies raised by Cocker Spaniels acted like Cocker Spaniel puppies. But what of their behavior as adults?

Limits of the Family Influence

While questions of racial inequalities and what to do about them, or indeed, what can be done about them, have been festering in the national agenda, quite remarkable progress has been made in the general sciences that deal with human development and behavior genetics. From new data have come new and quite surprising interpretations. The new data are mostly from studies of adoptees evaluated when they are adults, rather than as in most older studies where adopted children were studied in childhood. Also there are many new data concerning adult twins, raised together or raised apart, and other kinds of family arrangements. It now seems that for many physical and psychological traits, including measures of personality, intelligence, and psychopathology, identical twins that have been raised apart in different families resemble one another very closely in adulthood. At the same time, adoptees, although sharing a common family environment across many years, do not resemble each other in adulthood. Quite amazing and quite surprising, even to the scientists who have conducted the studies. Geneticist David Rowe in his recent book *The Limits of Family Influence* (Rowe, 1994) points out that

> Most people believe that different rearing experiences have something to do with differences in the way children turn out. ..... A social scientist opposing this cultural belief would be dismissed as uninformed and possibly dangerous. In response,

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> many people would recount stories from their own lives. Social scientists would mention the massive research literature showing influences of rearing on behavioral development. Nonetheless, many societies once accepted a flat earth; both experts and cultural beliefs, on some occasions, may be wrong. (p. 1).

This is pretty heady stuff, and Dr. Sandra Scarr has herself been an influential theorist in these new directions.

The traditional view in the social sciences, with roots in centuries-old philosophical speculations, has been that family environments, the social fabric in which individuals grow up, have important and lifetime cumulative influences on how the individuals turn out. Different societies or social class experiences caused differences among the individuals that grew up in them. The problem has always been that by-and-large genetically different people raise their children in their own differing ways, so that when the children grow up to resemble their family and to be different from others, it was impossible to separate the genes from the environments as causes of individual differences. To put it somewhat crassly, it has been known for centuries that , in general, poverty and stupidity tend to go together. The liberal catechism has taken it as central that poverty causes stupidity. However, that may be mostly, if not entirely, wrong. To an important extent stupidity causes poverty, and the "root cause" may be largely genetic. Such heretical thoughts are usually branded as evil, even "racist", by the enforcers of liberal ideological orthodoxy. But science accumulates knowledge, sometimes even in hostile intellectual environments. It takes a cross-fostering experiment – an adoption study, to separate genes and family experiences as causes of individuality. Now that a number of such studies have been done, the newly emerging interpretations run something like the following:

In childhood, adopted children tend to correlate somewhat with the parents who are raising them. This is because children are very importantly under the care, guidance, and coercion of their parents. At average age seven or ten, whether a child plays the piano or shoots hoops on a street corner, depends largely on the interests and involvement of the parents. Does the child know and enjoy camping, fishing and the great outdoors, or music, concerts and the symphony, or beer, booze and dope? It depends very much on what the parents

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are into and to what the parents expose the child. So, in childhood, adopted children tend to somewhat resemble each other and to resemble the people who are raising them. However, around adolescence/puberty some major changes take place. Biologically some genes active in children turn off and other genes active in adults turn on. One of the consequences is physical and mental maturation: Sex organs grow and sex fantasies grow apace. Another consequence is the "dispersal stage" common to most mammals and manifested among humans as adolescent "rebellion", mild or severe. Most young people begin to more-and-more control their own interests and choose their own activities and their own friends. At 10, who you play with is largely determined by what the parents allow; at 16 most youths much more choose and select their own friends from among a wider field of possibilities, often to the consternation of their parents. Play the piano? At 10 it is parent's choice, by 18 you quit if you wish. The upshot of all this becoming-adult is that individually different people seek out their own individually compatible lifespaces. The surprising outcome is that as adults, individuals that were raised together but are not genetically related (adopted siblings) correlate zero on many measures of intellectual and personality functioning. Similarly, the adopted children, when adult, do not resemble (the correlations are zero order) the parents that raised them. There is little or no evidence for cumulative effects of family environment. Rather, family resemblances, and differences, are importantly influenced by genes. Heresy.

Adult Results: Blacks will be Blacks

In this minefield of theoretical readjustments Professor Shockley's experiment sits, waiting to detonate. A ten-year follow-up was done, the children evaluated at an average age of seventeen (Weinberg, Scarr & Waldman, 1992). The results and their interpretation have created a bit of a tempest, so far largely confined to the academic teapot as reported in the scholarly journal "Intelligence". Initially the authors maintained an interpretation of the evidence as supporting environmental influences on the malleability of black's IQ: "These results (demonstrate) the strong effects of the rearing environment on IQ." (p. 131), "the results of the longitudinal follow-up continue to support the view that the social

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environment maintains a dominant role in determining the average IQ level of black and interracial children" (p. 133). To some it looked like spinning through Alice's mirror, or theoretically jumping through the Politically Correct environmentalist hoop twice. But, after all, genetic interpretations of human race differences in IQ will not get you elected president of the American Psychological Society; they will get you defamed and shunned, at least. After challenge, especially by Richard Lynn of the University of Ulster and Michael Levin of City College of New York (Levin, 1994; Lynn, 1994), the authors wrote that "it is not possible to reach definitive conclusions .... Our findings do not speak directly to genetic and environmental etiologies of racial differences in IQ," (Waldman, Weinberg & Scarr, 1994, pp 41, 42). On the contrary, the results not only speak, they literally shout, but very Incorrect Politically.

When retested as young adults (average age 17) the b/b adoptees displayed an average IQ of 89.4 while the w/w adoptees averaged 105.6 and the white biological children of the adopting middle class white parents scored 109.4. Recall that generally the racial IQ gap nationally is about 15 points, whereas here the gap is:

$$[w/w\ 105.6] - [b/b\ 89.4] = 16.2$$

This is substantially similar to the previous result when the children were young. What is different in this testing of older adoptees is the b/b average of 89.4. Where is there *any* evidence for a role of the social environment? Remember the earlier quotation: "There is no question that adoption constitutes a massive intervention .... the black children in this study have been fully exposed to the culture of the tests and the school," (Scarr & Weinberg, 1976, pp 738,737). A lifetime of immersion in middle class white family life sufficient to produce average IQs of 109.4 (biological offspring) and 105.6 (white adoptees), for an average black outcome of 89.4. This may appear to be above the nominal national average for blacks of 85, yet Levin (1994) points out that Minnesota blacks score somewhat above the national average. Parenthetically, the white biological parent dosage effect was maintained in that b/w adoptees averaged an IQ of 98.5:

$$[b/w\ 98.5] - [b/b\ 89.4] = 9.1$$

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As noted above, no single experimental study is perfect, and Scarr and colleagues now emphasize that there were some differences across adoptee groups in pre-final placement experiences. Perhaps Professor Shockley's experiment is important enough that an attempt should be made to replicate it on a large scale and without equivocal confounds. In the meantime, in the main these results are very clear, and very consistent with a wealth of other data and theory. Unfortunately these real data are completely at odds with the revealed wisdom of the egalitarian left. Here in the real world, as a young adult the Pit Bull, after being raised by Cocker Spaniels, acts like a Pit Bull.

An early abstract of the follow-up experiment conducted when the adoptees averaged 17 years of age mentioned social deviance and psychopathology at higher levels than had been found in other adoption studies (Scarr, Weinberg & Gargiulo, 1987). Languishing in two unpublished doctoral dissertations completed by graduate students are some potentially interesting findings. One dissertation, by Kimberly DeBerry (1991), was completed at the University of Virginia where Sandra Scarr is now a Professor. Among other things, the DeBerry dissertation reports the results of the Minnesota Multiphasic Personality Inventory (MMPI) testing at average age 17. Fully 2/3 of the interracial adoptees that took the test are said to display evidence of maladjustment by having at least one clinical scale elevation on the MMPI. Moreover, the white biological offspring of the middle class white adoptive parents fared just as poorly. These data require some speculative interpretation: Do they mean that Pit Bulls raised by Cocker Spaniels grow up to be at increased risk of psychological maladjustment? Could it be that Cocker Spaniel pups are harmed by being raised in mixed litters with Pit Bulls?

To interpret the MMPI results from the adoptees requires a consideration of the characteristics of the test. The Minnesota Multiphasic Personality Inventory was one of the most reliable and most widely used assessment devices for identifying abnormalities of personality. However, like any psychological test it was not perfect and has been revised to become MMPI-2. The first version of the MMPI was used in the DeBerry version of Professor Shockley's experiment. The normative group for the original MMPI was 724 people at the University of Minnesota hospital tested in the late

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1930s and early '40s. It was reportedly a good match for the 1940 Minnesota census. Dr. Ned Megargee, a noted MMPI expert, once checked those census data and estimated that there might have been 1.5 black people included in the 724 (Megargee, 1996). It is well established that generally blacks tend to have elevated scores relative to the standardization norms. Also, younger people tend to have elevated scores on some of the scales. Of the 10 basic MMPI scoring scales, the four with the most reported elevations in DeBerry's dissertation were, in order of frequency, 9, 5, 8, and 4. The standard characterizations of high scorers on these scales are:

9 (Ma) Mania – High scorers are called sociable, outgoing, impulsive, overly energetic, optimistic, and in some cases amoral, flighty, confused, disoriented; 5 (MF) Masculinity-Femininity – High-scoring males are described as sensitive, aesthetic, passive, or feminine. High-scoring females are described as aggressive, rebellious, and unrealistic; 8 (Sc) Schizophrenia – High scorers are often withdrawn, shy, unusual, or strange and have peculiar thoughts or ideas. They may have poor reality contact and in severe cases bizarre sensory experiences – delusions and hallucinations; 4 (Pd) Psychopathic Deviate – High scorers often are rebellious, impulsive, hedonistic, and antisocial. They often have difficulty in marital or family relationships and trouble with the law or authority in general. (adapted from Rosenham & Seligman, 1984, p.163).

Without a matched age and race comparison group it is difficult to know what to make of the finding that 2/3 of the tested transracial adoptees had clinical elevations relative to the norms. It could simply be that these young people, although raised in the home and social milieu provided by middle class white parents, are performing like typical blacks raised under usual conditions. In other words, as was the case with the IQ data, the personality results indicate that Pit Bulls raised by Cocker Spaniels grow up to be Pit Bulls.

Does it Hurt Whites?

The elevated scores of the white biological children of this sampling of middle class white parents are problematic. Of the many possible interpretations, three likely possibilities come to mind. One is that it is hard on the white biological children to be raised alongside black adopted siblings. It would not be the first time that

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well-intentioned liberal humanitarian endeavors turned out to have unanticipated consequences (a fascinating book-length account of the effects of The Great Society is titled *Paved with Good Intentions* (Taylor, 1992)). We really don't know the consequences for the white siblings. We do know that there are many physical traits and maturational rates that are different between black and white children, beyond the psychological variables that were the chief focus of the study. Would it affect the personality of a bright white child to be raised with a different race sibling that tended to be stronger, had denser bones and better physical coordination, matured sooner and was more boisterous and less intelligent (Rushton, 1995)? A recent report from the U.S. Department of Agriculture (concerned with nutritional needs in childhood) reports that black children experience their growth spurt two to five years earlier than white children. By age 7 for boys and 6 for girls, blacks have accelerated muscle and bone development. They sooner grow taller and heavier and mature sexually about three years earlier than whites (Nando.net, 1996). A very extreme across-species adoption study was conducted back in the 1930s by the animal psychologists Winthrop and Louella Kellogg. They reported their findings in a 1933 book *The Ape and the Child: A Study of Environmental Influence Upon Early Behavior.* When their first child Donald was born they located a baby Chimpanzee named Gua. Donald and Gua were raised together as siblings and treated as alike as possible, until being separated when Gua was 16.5 months of age and Donald was 19 months. We have no way of knowing if there were any long range effects of this experience for Gua or Donald. Anecdotally, a scientist who knew him has reported that Donald had a gait with a definite simian lope. Tragically, Donald committed suicide as a young man.

A second possibility to account for the elevated clinical scales on the MMPIs of the biological children of the middle class white parents that took part in transracial adoptions would be to invoke normal familial relationships. Unfortunately we do not have the data for the biological parents and thus cannot make the necessary comparisons. However, a likely possibility is that these youth are simply displaying the well-known phenomenon of familial correlations. Without casting any aspersions on the adopting adults, one must ask what kinds of middle class white couples in the social

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environment of 1960's Minnesota initiated cross-racial adoptions? Undoubtedly caring adults who felt a social commitment and followed through with quite unusual behavior. Such adopting was a very rare event and was "not normal" in just this sense of being rare. People who engage in very unusual behaviors, whether socially desirable or socially undesirable, tend to be unusual in a wide variety of ways, including personality traits. Thus it is entirely reasonable to hypothesize that the MMPI results of their biological children might simply reflect the well known familiality of personality characteristics. This parental-resemblance hypothesis is less likely to account for the elevated deviancy rates of the black adoptees because in other studies personality characteristics of young adult adoptees have been found to not correlate with those of their adoptive parents or adoptive siblings (Rowe, 1994).

The third possible interpretation of the elevated rates of psychopathology reported for both black adoptees and the white biological children in DeBerry's dissertation is simply that the findings may be spurious. That is, they may not replicate nor generalize. These results could be due to any number of quirky events that might be unique to this particular study. For instance, at the 17-year old follow up, not all of the adoptees or biological offspring from the original study took the MMPI. Was there selective participation that led to the particular pattern of findings reported? Because the results and interpretations are of potentially great importance, Professor Shockley's experiment probably should be replicated.

In a dissertation completed at the University of Minnesota, L. Fischer (1991) related patterns of family functioning to MMPI characteristics of both the transracially adopted and the biological offspring. She noted generally that the white "Biological children showed significantly more psychopathology than transracial adoptees" (p. 73). So again an indication that Cocker Spaniels do not thrive when raised as littermates with Pit Bulls. Two of the dimensions of family environment are labeled "Adaptability" and "Cohesion". Cohesion has to do with the emotional bonding among the family members. The members of high cohesion families are said to be "enmeshed", while low cohesion families are "disengaged". When measured by deviancy of MMPI scores, the white offspring seemed to be better in highly cohesive families and worse with low cohesion.

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For the transracial adoptees, family cohesion was not as important as was adaptability. The adaptability dimension has to do with the tendency of a family to change its rules and relationships (power structure, roles, etc.) in various situations. Adaptability involves the discipline, roles, rules, and control systems of the family. Very high adaptability is called "chaotic" which grades through "flexible" to "structured" to "rigid" for low adaptability families. The transracially adopted young adults clearly did better, as measured by MMPI deviancy, with low adaptability. With rather rigid, structured roles and rules they appeared better overall and for them cohesion was unimportant. Without getting into the conundrums of directionality of causation (psychologically healthy adoptees create rigid family rules, or families with rigid rules tend to develop psychologically healthy adoptees, or both are parallel manifestations of genetic predisposition), it is potentially important to note that the relationship between kind of family structure and the apparent well-being of the children was different for the white biological offspring and the transracial adoptees. Consistent with the historical observations of such disparate commentators as Albert Schweitzer and traditional Southern County Sheriffs, one interpretation is that Pit Bulls do best with rather strict and inflexible rules. On the other hand Cocker Spaniels respond favorably to emotional bonding.

What is to be Done?

One of the experiments that Professor Shockley suggested to the National Academy of Sciences at its Spring Meeting of 1968 has been conducted and the results are in. What is to be done? As suggested at the beginning of this article, if recent history is a guide we will first wish the results the death of silence. Pretend they do not exist. If that fails, then yell and scream and call names. Outrage at insensitivity; heap acrimony upon *ad hominem*.

The unfortunate truth that no-one was particularly hoping for is completely at odds with the revealed wisdom of the egalitarian left: When black babies are adopted into middle class bright white families they grow up to function intellectually like blacks. Less clear is what happens emotionally and in terms of personality adjustment. Whatever, there is no evidence that either the white children or their black adopted siblings grow up better adjusted, and there might be

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substantially more social deviancy and psychopathology than without the mixed-race adoptive experience. These data are consistent with a large and growing body of other findings.

In a rational civilized and civily humanitarian culture there might be a call for further investigation and study of the implications of the best scientific information that is available. In a civilization that is experiencing a phase of irrational ideological zealotry the response would be quite different.

In 1961 a president of the American Psychological Association, Henry Garrett, called the egalitarian dogma that blacks and whites are genetically equal in cognitive ability the "scientific hoax of the century" (Garrett, 1961). In 1967 the Nobel laureate William Shockley lamented the "entrenched dogmatism of inverted liberals" that prevented open discussion and unbiased research (Shockley, 1967). In 1995 the sociologist Robert Gordon referred to the "degradation ceremony" which is held to heap acrimony on anyone who deviates from "one-party science" (Gordon, 1995). The Canadian psychologist J. Philippe Rushton has experienced attempts to criminalize him because of his research (Whitney, 1996). Charles Murray in his "afterword" for the 1996 soft-cover edition of *The Bell Curve* opines "The social science that deals in public policy has in the latter part of the twentieth century become self-censored and riddled with taboos – in a word, corrupt." (Murray, 1996, p. 575) The inquisitional zeal with which the secular priesthood attacks any apostate from the egalitarian fiction would be ludicrous if the consequences were not so serious.

Science and Socialism

The current state of affairs in the social sciences is not unprecedented in recent scientific history. The conditions of soviet science under socialism are only just now becoming known in the west. There have been a spate of books, one is the 1994 *Lysenko and the Tragedy of Soviet Science* by Valery N. Soyfer (translated by Leo and Rebecca Gruliow). Under socialism, the genetics that forms the basis for individual and race differences was first attacked, then ridiculed and essentially outlawed as an anti-egalitarian invention of Western capitalists that was inherently evil because it was inconsistent with Marxist-Leninism. In America *The Science and Politics of IQ*, or

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Not in Our Genes, or *Ever Since Darwin* will give you the flavor (Gould, 1977; Kamin, 1974; Lewontin, Rose & Kamin, 1984). The absurd anti-factual structure which developed was able to dominate all of the biological and social sciences in the Soviet Union and its client states for a period of decades. *This perversion was not the work of any one man, not the great Lysenko, rather it required the active involvement and support of many of the leading scientists and intellectuals.* It is a fundamental structural flaw of socialism, to claim to establish reality on the basis of the scripture according to Marx. Genes and heredity did not influence differences between individuals, or races, or eventually even species. Instead, conditions of rearing were all-important. Everyone knows fertilizer is important, so manipulate the early experiences of the puppies in order to change their development. "Vernalization" was the name for one sort of head start program, sure to transform winter wheat into spring wheat. No need, or time for basic research, there was a pressing national need that called for intervention now. So, throw money at nice-sounding intervention programs. Then, without evaluation introduce nation-wide applied programs. Discourage any mention of genetics – it represents the Hell of Capitalism, the Devil's work in total contrast to the Paradise of Egalitarian Socialism. Inheritance and genetics is Nazi-tainted evil; its practitioners must be despicable racists. When one program after another fails, simply give them more rubles, or quietly close them down while touting with much fanfare yet another enrichment. It is truly scary; the parallels between Soviet practice under socialism and environmentalist – egalitarianism in American social policy. Egalitarian agriculture and the food shortages it caused played no small role in the demise of the Soviet Union.

Soyfer says it well:

> In any society, there are charlatans and people who are simply mistaken. They may try to deceive their fellows, either by design or out of ignorance. But in a healthy society, others will call attention to their errors, test their assumptions, and make objective appraisals. Shams are exposed, and no one punishes those who do the exposing; members of the government or secret police do not hurl political accusations against seekers of scientific truth. But that

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> is what happened when an alliance of the Lysenkos, the Stalins, and the Berias was part of the onrushing, bloody chariot of socialism.(p.300)

One of Professor Shockley's suggested experiments has been done and the results are in. Now after 30 odd years and over $5.4 Trillion dollars, perhaps it is not too late to dust off some of his other suggestions.

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The "Demographic Transition" in Relation to Cultural Evolution: A Candidate for Paradigmatic Imperialism

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A major principle widely accepted in sociology and demography has been the phenomenon known as the "demographic transition" wherein a culture with high birth rates and high death rates evolves into one with high birth rates and low(ering) death rates, and then stabilizes at both low birth rates & low death rates. Although the transition has occurred in a number of countries, it is not certain that every population will necessarily follow that trajectory. Evidence is offered to suggest alternate pathways. The consequences of such alternatives upon cultural evolution are discussed.

A cornerstone to the disciplines of sociology and demography is the phenomenon known as the "demographic transition". At its most fundamental level, the demographic transition is a sequential shift, over time, in birth rates and death rates: (1) a pattern of high birth rates & high death rates in an intact social group is (2) followed by one of falling death rates with birth rates remaining high which, in turn, is (3) succeeded by low birth rates & low death rates. See Davis (1945), Bogue (1963), Nam (1965) and Berelson (1978) for a discussion and a historical over-view of the origin and development of the concept of the "demographic transition". See Low (1994) for a more current usage of the phenomenon.

The demographic transition has enjoyed both descriptive as well as predictive successes. Indeed, a number of countries and geographic areas have been noted as exemplars illustrating the pattern. Depending upon the author(s), the demographic transition has been interpreted as a theory, a principle, a rule, a law, or a trend.

Nonetheless, however the demographic transition may be interpreted, its existence and impact are subject to a rather remorseless constraint. For an intact social group – whether a family,

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a tribe, or a nation – to remain extant over generations, the members of that group must procreate at a level to replace, at a minimum, the preceding generation. If, for any social group, the number of births should consistently fall below the number of deaths, then that social group will be replaced by an alternate social group which has a cultural calculus which does consistently replace the preceding generation. See the Human Relations Area Files (HRAF 1949), the Ethnographic Atlas (Murdock 1957), and the World Ethnographic Sample (Murdock 1967) for a long litany of cultures which were eliminated from the world's community of intact groups. Currently threatened tribes include indigenous peoples of the Amazon region plus attempts at genocide in places like Rwanda, southern Sudan and even Bosnia in Europe. This paper analyzes the demographic transition in relationship to how its dynamics may apply to contemporary countries and the relative viability of their cultural mosaics.

Cultural Evolution

The term cultural evolution refers to changes, over time, of expectations and behaviors in an intact, cohesive social group. See Harris (1979) for examples and Harris (1974) for an historical perspective on "cultural evolution" theorists. See Barkow (1980, 1989) and Durham (1979, 1990) for discussions on the feedback loops involved in the evolution of complex cultures. The inherent flexibility and malleability of cultural rules/expectations do allow the referent culture to adjust and to readjust the behavior of its members to changing ecologies, environments, and threats from neighbors. This adaptability of culture to shifts in its milieu helps cultures remain extant. However, there is no guarantee of societal viability. Facets of the theory of demographic transition indicate two expectations or rules which have been incorporated into and shared by a number of groups across the globe (1) if the premature deaths of kin can be prevented, they will be, and (2) if women have greater freedom and autonomy in controlling their reproductive histories, then they will avail themselves of that enhanced freedom and autonomy and have fewer children.

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(1) Decline in death rates

There is a strong intuition in the notion that if a family can prevent the death of one of their children, then the family will do so. Accordingly, as medical technology and the control of disease advance, it would surprise no one that the advances would be embraced and utilized. Thus, death rates, especially those of infant mortality, would be expected to drop in proportion to the availability and effectiveness of the advances.

(2) Decline in birth rates

Any similar imperative in the decline in birth rates is less intuitive. There seems to be no a priori reason why a voluntary reduction in conceptions and births would follow from any advances in contraceptive technology. Nonetheless, such a decline has occurred in a number of countries. For various discussions on the variables aligned with changes in fertility see Arnold et al. (1985) Cochrane (1985), Fawcett (1985), Handwerker (1983), Easterlin & Crimmins (1985), Bulatao et al (1988). The next section reviews the relative generalizability of the demographic transition.

A Cross-National Review

In 1972, the U. S. dropped below replacement value (less than 2100 children born per 1000 females [assuming low infant mortality]) (U. S. Bureau of the Census 1994). Hence, it seems reasonable to assume that the U. S. had achieved the third phase of the demographic transition: low birth rates and low death rates. If so, then this date seems a good benchmark wherein both ideologies and contraceptive technologies subtending lowered birth rates were developed well enough and solidified well enough to be available to be shared with the world's community of nations.

Accordingly, the demographics of nations from the 1970s and the 1990s will be examined. The interval from 1970 to 1990 entails a complete generation, and, if the demographic transition were to be an "invariant" cultural norm or rule or principle, then the declines in birth rates as well as in death rates would be expected to have occurred across the "global village"/world.

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Method

The relevant demographics from five regions were surveyed (United Nations 1973, 1993) in the two time frames: Europe (27 countries), South America (12 countries), East Asia (11 countries), Sub-Saharan Africa (29 countries), and the swathe of Moslem nations across North Africa & the Middle East (9 countries).[1]

Europe is the "home" of the demographic transition and can serve as a baseline or benchmark for the other areas. East Asia and South America have been modernizing their (free-market) economy and would be a good and reasonable test for the predictability of the theory. The swathe of the Moslem world across northern Africa and the Middle East tends to tilt in the direction of the patriarchical: a patriarchy which would not optimize women's reproductive options. Sub-Saharan Africa is a tropical land mass of some size, and, due to a lack of a winter may have generated different ecological (read selective) pressures on the indigenous peoples (see Miller (1993, 1994) for a discussion). See Appendix I for a listing of the countries.

Results

Birth rates

In four regions, the Moslem Swathe, Europe, East Asia, and South America the (crude) birth rates decreased from 1970 to 1990. In Sub-Saharan Africa, the birth rates had no significant change from 1970 to 1990. See Table One.

Death rates

In all five regions, the (crude) death rates decreased. See Table Two.

Percent of natural increase (per annum)

Europe, South America, and East Asia all had a reduction in their percent of natural increase (birth rates minus death rates = natural increase). The percent in respect of the Moslem Swathe

[1] Different nations have their censuses taken at different times. The nearest census to 1970 and to 1990 became the scores of record.

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TABLE 1.

A comparison of mean birth rates (number of births per 1000 population) between the 1970s and the 1990s for the five areas.

Geographic area/ Number of countries	Birth rates 1970	Birth rates 1990	Difference 70s - 90s	p <*
Sub-Saharan Africa n = 29	46.2	46.0	0.2	n.s.
Moslem Swathe n = 9	46.1	37.5	8.6	.05
Europe n = 27	17.6	13.4	4.2	.01
South America n = 12	37.35	24.9	12.5	.01
East Asia n = 11	34.7	24.7	10.0	.01

* t-test for repeated measures, two-tailed.

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Table 2.

A comparison of mean death rates (number of deaths per 1000 population) between the 1970s and the 1990s for the five areas.

Geographic area/ Number of countries	Death rates 1970	Death rates 1990	Difference 70s - 90s	p <*
Sub-Saharan Africa n = 29	22.9	17.2	5.7	.01
Moslem Swathe n = 9	17.5	8.2	9.3	.01
Europe n = 27	10.4	9.8	0.6	.05
South America n = 12	9.9	6.6	3.3	.01
East Asia n = 11	11.5	8.6	2.9	05

* t-tests repeated measures, two-tailed

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TABLE 3.

Comparison of mean rates of natural increase in percent per annum between the 1970s and the 1990s for the five areas.

Geographic area/ Number of countries	% natural increase 1970s	% natural increase 1990s	Difference 90s - 70s	p <*
Sub-Saharan Africa n = 29	2.33	2.88	+.55	.01
Moslem Swathe n = 9	2.86	2.93	+.07	n.s.
Europe n = 27	0.72	0.36	- 36	01
South America n = 12	2.745	1.830	-.915	.01
East Asia n = 11	2.32	1.61	- .71	01

* t-tests repeated measures; two-tailed.

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TABLE 4

Birth rates by economic parity for women: Percent of female tertiary students plus ratio of female to male wage earnings, circa 1990 (n = 12) (Smith-Morris 1990. United Nations 1993).

Country	Birth rates	% female tertiary students	Ratio of female to male earnings
Denmark	12.5	50%	.84
France	13.2	51%	.81
Germany	11.0	41%	.73
Iceland	16.9	54%	.90
Japan	10.3	37%	.52
Luxembourg	12.1	34%	.66
Netherlands	12.8	42%	.76
Switzerland	13.0	32%	.67
United Kingdom	14.0	46%	.695
Czech/Slovakia	13.0	42%	.68
Hong Kong	12.3	35%	.77
South Korea	15.7	30%	.48
Mean	13.1	41.2%	.71
s.d.	1.8	7.9%	.12

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was unchanged. Sub-Saharan Africa had an increase in its rate. See Table Three.

Discussion

Europe, South America, and East Asia can be argued to exemplify the dynamics of the "demographic transition". However, as of 1990, the Moslem Swathe and Sub-Saharan Africa do not. From these available data, it could be argued that either (i) the demographic transition is specific to a particular type of generalized cultural mosaic or (ii) is adopted at different times by different mosaics, i.e. the Moslem Swathe and Sub-Saharan Africa will eventually align themselves with other areas. The latter, of course, is the (tacit) assumption girding most theoretical discussions. In either event, there is clearly some contemporary (bio)cultural item or items which separate out the Moslem Swathe and Sub-Saharan Africa from Europe, South America, and East Asia. The following section offers a plausible, if partial, exposition to address the disparity.

Five points

Five interrelated points are germane to these data: (1) the biocultural character of the human condition (2) an increased access to freedom and autonomy, (3) the individual vs. the commonweal, (4) the value of children, and (5) feedback loops.

(1) Biocultural character of humanity

The biocultural character of the human condition is certainly in evidence for this exercise. Birth rates as well as death rates both reflect biological processes which are clearly changed by the form and content of different cultural mosaics. Secularized, industrialized societies have, in the main, lowered both their birth rates and their death rates. Moslem patriarchical societies have lowered their death rates, but have maintained a high percentage of natural increase. Agrarian Sub-Saharan Africa has maintained high birth rates and raised their rate of natural increase. It is of interest to note that all of these patterns have occurred within the same species within the same time frame. The extent that the "cultural" segment

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(Fundamentalist Islamic ideology would be a good example)[2] is the dynamic which is driving the demographics versus the extent that the "bio-" segment ("r" versus "k" selection is an interesting candidate) is the flywheel is unknown, and, hence, well beyond the scope of this exercise. Nonetheless, the ever present, ever on-going "nature-and-nurture" quagmire is still circling over the horizon to await any attempt at a clean, unambiguous analysis. It is probably salutary just to note the existence of the "biocultural" character and then to leave the matter at that note.

(2) Access to autonomy

As a generalized notion, it seems reasonable to assume that, if people are afforded enhanced access to more freedom and to more autonomy, then they will grasp such enhanced access rather firmly. Accordingly, when women in several areas of the planet (e.g. Europe, South America, East Asia) had the opportunity to control their reproductive histories, they did. Birth rates dropped. Aligned with this (bio)cultural phenomenon of chosen fewer births, two other trends emerged. (i) Women were able to increase their proportion in tertiary (college) educational institutions, and they did. (ii) Similarly, where women were more able to increase their wage earnings in comparison to men's wage earnings, they did (Smith Morris 1990, United Nations 1993). See Table 4. In each of the surveyed countries in which women's economic and educational levels could be compared to the men's, the birth rates (mean = 13.1, std. 1.8, Iceland high at 16.9; n = 12) were well below the mean birthrates both for the Moslem Swathe (37.5) and for Sub-Saharan Africa (46.0).

While these egalitarian trends have ideological popularity in many quarters, the end result of such trends may be less sanguine. A world view of enhanced reproductive freedom cum gender equity does not seem to be demographically competitive with societies wherein such freedom is not available. To the extent that a cultural mosaic avoids the European pattern (0.4% natural increase per

[2] There are also religious fundamentalist ideologies within the U. S. to which the same caveats in relationship to the demographic transition may apply viz. the Hutterites, the Amish, Hasidic Jews, and, perhaps, contemporary Mormons.

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annum), but emulates the African or Moslem pattern (2.9% natural increase per annum), the more competitive – over time – that mosaic would be. Said differently, if entry into educational/occupation hierarchies is not available to women, then these life-chances are precluded from impacting upon reproductive options. The upshot of these two separate modes of framing a society – enhanced access versus restricted access – is that one is more competitive, over generations, thus better able to propagate itself, and the other is less competitive, over generations, and thus more vulnerable to be replaced with an alternate, more fertile, system.

(3) The individual vs. the commonweal

Hardin's (1968) "Tragedy of the Commons" formalized a fairly commonsense notion: when individual freedom, along some dimensions, is maximized, the corporate or commonweal is threatened/destroyed. If women (or men), one at a time, opt for reduced fertility in favor of alternate forms of investments of time, energy, and resources, then they may more maximize their own life-styles and life-chances. Yet, if women (or men), one at a time, do systematically opt for reduced fertility levels below replacement value, then their referent social group constricts in size per family and such a group would be superseded or replaced by cultural formulae wherein freedom/autonomy in family size is more circumscribed, but the continuity, over generations, of their populace/tribe is more secure.

(4) The value of children

In addition to the psycho-emotional value that children generate for their kin, the "child" can also be analyzed within the "dismal science" of economics. Phrased bluntly, when children become net economic benefits, they appear – birth rates are high. When children become economic net costs, they disappear – birth rates fall (Aghajanian 1978, 1988, Bradley 1979, Day & Mackey 1986, Nag, White, & Peet 1978); see Zelizer (1989) for a discussion. A ripple or incidental effect of larger family size is that the population within which the individual family is operating expands demographically. Therefore, a(ny) culture whose "rules" eventuates in its children generating net economic benefits would tend to have a demographic

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advantage compared to a(ny) culture wherein children are net economic costs.

(5) Feedback loops

Cultural systems tend to have feedback loops. The rules or expectations governing culturally "appropriate" behaviors shift over generations to solve the problems which are inherent in maintaining intact social groups: e.g. obtaining food & water, preventing internal turmoil & dissension, procreating & socializing the next generation, and preventing external intrusions by competing groups. Those rules/expectations which do enhance the maintenance of the group tend to be solidified in the group's cosmology; while those rules/expectations, which lessen the viability of the group, tend to be ignored, altered, or jettisoned. For this exercise, the cultural "rules" which result in the bearing of children will "feedback" to maintain and to reinforce whatever those "rules" were. Conversely, if cultural "rules" or expectations result in a fertility pattern below replacement value, then either their "rules" are changed or the referent society is replaced, or is absorbed, or is eradicated.

Summary

Whatever else the demographic transition may be able to predict or explain, the demographic transition may also turn out to be an index of cultural hari-kari. That is, the more that a group parallels the classic definition of the demographic transition, the more clearly it signals its own vulnerability to being replaced. It is certainly conceivable that the fate of the "demographic transition" could be one of a footnote in the human chronicles: a minor blip of only a few centuries in duration with little long term impact on the thousands of years of the human's past and the human's future. The concept of "temporocentrism" seems clearly relevant here.

Ceteris paribus, the less that a group follows the trajectory of the demographic transition to its final stage, then the greater the chances that it would be self-sustaining. A trade-off for such an increased play of survivability would be the simultaneous reduction of the autonomy/freedom of the group's women who would chose to enter into educational/occupational hierarchies. Such reduced access – in the past, in the present, and highly likely in the future – has been

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challenged from several quarters, and energetic efforts have been introduced to redress the reduction and increase the opportunities. How the various forces – synergized, confrontational, complementary, competitive, cooperative, covert, overt, formal, informal, direct, and indirect – play out over the next millennia or so should keep politicians and social scientists busy and intrigued for the duration.

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Jains and Entrepreneurship

T. Mohanadoss
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Max Weber was the first Western thinker to explain effectively the influence of religious sentiments on economic behavior. He proposed his bold thesis that protestant ethic played dramatically a central role in the generation of capitalism's revolutionary psychology. The objective of this study is an analysis of economic implications of the religious precepts of Jainism in the light of Weber's thesis.

This paper tries to achieve its objective in two sections. The first section deals on Weber's thesis within a general framework of religion and economic development. The second section concentrates on Jainism and entrepreneurship, wherein an attempt is made to discover the elements in Jainism that have possibly contributed to the economic development of Jains.

1. Religion and Economic Behavior

Religion, one of the fundamental social institutions of human society, is an integral part of the whole complex of people's beliefs, valuations and their mode of living. Religion, which is a human response to Transcendent, plays a number of useful functions on the social and personal planes. The primary function of religion is to give meaning to human existence and to the matrix in which this existence takes shape and develops. Peter L. Berger understands religion as an "audacious attempt to conceive of the entire universe as being humanly significant" (1967: 28).

Any effort to understand economic development should also take into consideration non-economic factors. There is a greater consensus now that both economic and non-economic factors freely interact in the course of economic development. Gunnar Myrdal's words in this context leap to the eye, "There are no exclusively economic problems, there are simply problems, so that distinctions between economic and non-economic factors are, at best, artificial....The only worthwhile demarcation – and the only one that

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is fully tenable logically- between relevant and less relevant factors" (Kaur 1990: 4). However the opinions on nature of the relationship between economic determinants of development and of the other factors are not unanimous.

The view that economic and non-economic factors are independent of each other is empirically untenable. Economic development of many developed countries with their diverse socioeconomic conditions clearly shows that non-economic factors have always played a vital role in the economic progress. The second possibility is that economic and non-economic factors are mutually causative, while one of factors plays a dominant role. The approach emphasizing dominance of the former, Talcott Parsons, calls material factor approach (economic determinism) and the latter as ideal factor approach (cultural determinism) (Weber 1958a: xiv). The material factor approach regards economic factors as the main determinant of the culture of a society. It is also referred to as the materialistic view of history and associated with Karl Marx. According to Marx, W. J. Barber writes that "all human activities – not simply those performed in the course of acquiring a livelihood but religious, artistic and philosophical expressions as well – were fundamentally conditioned by class positions in the economic system" (1967: 120). Marxian approach offers considerable insights into the development process but however it is not free from limitations. In contrast to the material factor approach, the ideal factor approach underlines the role of cultural factors in determining the level of economic activity and the process of economic development. E. E. Hagen, Pareto and Veblen are some of exponents of this approach (Kaur 1990: 13).

The approach which holds that socio-cultural and socio-economic factors interact in an ongoing process in which it is unlikely that any one factor dominates, is also known as the 'qualitative approach. Kindelberger holds that "socio-cultural determinism is no more likely an explanation of the course of economic development than is economic determinism of social history" (1977: 37). The main feature of this approach is that the economic and cultural factors freely interact and influence each other in the developmental process which is all embracing in nature.

The preceding brief analysis reveals that economic development is a continuing, cumulative and complex process which includes both

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economic and non-economic factors and their mutual causation. Meier and Baldwin assert that the psychological and sociological factors are equally important as the economic ones for development (1964: 360-64).

Role of Religious Factor

Religious consciousness is perhaps one of the most important non-economic factors shaping human attitudes and values. Religious ideas influence the development of economic spirit and the ethos of an economic system. Religious activity can have a negative as well as a positive effect on economic development. J. J. Spengler laid down an acid test whether religion may be regarded as a positive factor in economic development. According to him the dominant values of a religion should "favour activities which are both economically productive and conducive to capital accumulation and technical progress" (1955: 369). W. Arthur Lewis is descriptive on this score. If a religion gives importance to, in his words, "material values, upon work, upon thrift and productive investment, upon honesty in commercial relations, upon experimentation and risk bearing and upon equality of opportunity, it will be helpful to growth, whereas insofar as it is hostile to these things, it tends to inhabit growth" (1977: 105).

In the nineteenth century, Hegelians and Marxians reflected on the problem of the interrelations between religious and economic life and came out with opposite conclusions. All stylization of social life proceeds, for Hegel, out of religion. "Religion stands in the closest connection with the political principle. Freedom can exist only where individuality is recognized as having its positive and real existence in the Divine Being" (1994: 50). But for Marx, morality and religion are a mere superstructure resting on material life process (1939:5; 1904: 11-12).

A Key to Understanding Max Weber

Weber's The Protestant Ethic and the Spirit of Capitalism (PESC) was widely interpreted that he had entered the conflict between the idealistic and materialistic social philosophers. But the interpretation that PESC is an answer to Marx summarily distorts its significance. Weber did hold the view that the notion of historical

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materialism is naive. Because he rejected the treatment of religious attitudes and beliefs as superstructure of economic relations, he was also unwilling to subscribe the notion that the economic structures have no influence on religious attitudes and beliefs (Nevaskar 1971: xviii). "It is not,, my aim to substitute for a one-sided materialistic an equally one-sided spiritualistic causal interpretation of culture and history" (Weber 1958a: 183). Don Martindale's comment on the above quoted statement cannot but be mentioned here. "It is a mistake to view Max Weber's The Protestant Ethic as an attempt to refute Marx. So far as he was refuting anything it was the monocausal hypotheses, whether it be spiritualistic or materialistic. So far as he was advocating anything it was a pluralistic analysis of socio-cultural causation" (Nevaskar 1971: xviii).

Weber's Thesis

The important contribution of Weber, according to Parsons, is that he helped, "to shift the basic problem from the question whether and how much religious and cultural values influence behavior and society, to that of how they influence them and in turn are influenced by other variables in the situation" (Weber 1958a: xviii).
Weber recognized the importance of the economic factor but he came to the conclusion that the economic factor in itself was not sufficient for the development of modern rational organization. He regarded religious ideas as having decisive impact on the material culture of a society. He proposed the bold thesis that in the rise of capitalism, protestant ethic played a dramatically central role in the generation of capitalism's revolutionary psychology.

Weber theorized that the ascetic characteristics illustrated most fully by the Calvinistic churches played an important part in the industrial and capitalistic development of Europe. The beliefs of the Calvinists, according to Weber, resulted in a powerful motivation to economic activity . He found a synthesis of all the calvinistic ideas which strongly motivated to economic activity in the protestant concept of "Calling". He understood the doctrine of calling as the main spring of material progress in the West. It denoted a way ordained by God. The fulfillment of duty in worldly affairs under all circumstances is regarded as the only way to live acceptably to God.

As every Christian is understood to be a monk all his life, all

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vocations are considered as of equal value (1958a: 7981). The labor as a calling was continued as the best, often in the final analysis, the only means of attaining certainty of grace. An unwillingness to be an industrious worker was symptomatic of lack of grace. Further, he who changed his occupation and rank by upward mobility through his own diligence was a credit to the creator. Consequently, not to accomplish as much as humanly possible would be sinful. Thus the protestant ethic not only provided the religious sanction for sustained activities but it channelled human energies into an inner drive toward work.

Wealth must not be squandered. No money must be spent on anything which does not glorify God. If individuals could not squander their wealth, the inevitable result was the accumulation of capital, which was then made available for productive investment. Asceticism looked upon the pursuit of wealth as an end in itself as highly reprehensible, however, the attainment of wealth was perceived as a fruit of labor and a sign of God's blessings. On the significance of ascetic protestantism for the development of Capitalism, Weber says, ~When the limitation of consumption is combined with the release of acquisitive activity the inevitable practical result is obvious: accumulation of capital through ascetic compulsion to save. The restraints which were imposed upon the consumption of wealth naturally served to increase it by making it possible the productive investment it by making possible" (Weber 1958a: 172).

2. Jainism and Economic Development

Jains are known as the oldest religious minority in India but at the same time a very significant one. They accounted for 3.21 million -according to 1981 Census- which was 0.48% of the total population of the country. Unlike Sikhs they are not highly concentrated in any one of the States but live all over India. Over three fourths of Jains live in four states of India: Maharashtra, Rajasthan, Gujarat, Madhya Pradesh and Karnataka. The smaller proportions live in Uttar Pradesh, Tamilnadu, West Bengal and Bihar. Due to their prominence in business they are concentrated in Urban areas.

Economic Status of Jains

There are no reliable data on the income levels among the Jains but it is generally accepted that they occupy a high economic position

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relative to most communities. Weber has called attention to their economic status in The Religion of India, "The honesty of the Jain trader was famous. Their wealth was also famous: formerly it has been maintained that more than half of the trade of India passed through their hands" (1958a: 120). Vilas Adinath Sangave, a Jainologist says, " The Jains follow practically all sorts of vocations but they are mainly money lenders, bankers, jewellers, cloth-merchants, grocers and recently industrialists. As they hold the key positions in all these occupations, it is no wonder that a large proportion of mercantile wealth of India passes through their hands"(1980: 259). Schrermerhorn observes that they occupy a high position in business and industrial sectors (1978: 102). M.N. Srinivas opines that most of the Jains came from the rich mercantile class (1966: 23). Yogendra Singh, a sociologist quotes an English writer who noted in 1829: "more than half of the mercantile wealth of India passes through the hands of Jaina laity"(1988: 150). Michael Carrithers remarks, "In early modern and modern India, Jains have played a role in commercial and political life out of all proportion to their numbers....They managed to retain a reasonably high position in the political economy as a whole"(1991: 1, 294). A.L. Basham comments, "Though the history of Jainism is less interesting than that of Buddhism, and though it was never so important, it survived in the land of its birth, where it still has some two million adherents, mostly well to do merchants"(1954: 284). All these observations have been authenticated in 1981 Census Atlas wherein the predominance of Jains in business is placed on record.

Religious Doctrine

Jainism along with Buddhism is called "the great heresies" of Hinduism. As a religious movement, it believed in the futility of sacrifices, rejected the primacy and the revealed nature of Vedas and was against the caste hierarchy and the authority of Brahminical priesthood (Schrermerhorn 1978: 105). However Jainism has not wiped away the social structure of caste division within its boundaries while its religious significance is disowned. There are eighty-seven and thirty-eight castes and subcastes in Digambaras and Svetambaras respectively. Brahmins are the Temple priests in Svetambaras. Digambaras and Svetambaras are the major sub-sects in Jainism.

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Mahavira to whom the origin of Jainism is popularly ascribed, glorified the ascetic life and denied the existence of a supreme deity. He gave laymen a subordinate place and valued the acceptance of the monk's discipline as a necessary prerequisite for liberation. The doctrines propounded by Mahavira cluster around three foci: the nature of the world, the nature of karma and the place and destiny of man. Though these are stated separately, they must be understood together. The exposition on the religious doctrine of Jains here is tailored by the objective of this paper.

Mahavira preached three excellences (*triratna*) for all, namely, the right faith (*samyagdarsana*), right knowledge (*samyagjnana*) and the right conduct (*samyalcaritra*) and advocated for monks and nuns the practice of following five great vows (*mahavratas*): 1 Not to kill (*Ahimsa*) 2. Not to lie (*asatya tyaga*) 3. Not to steal (*asetyovrata*) 4 Abstaining from sexual pleasures (*brahmacarya vrata*) 5. Non-attachment to worldly things (*aparigrahavrata*). Since he was well aware that these strict vows cannot be practiced by lay followers, he encouraged the general community to develop the following twenty one qualities: serious demeanor, cleanliness, good temper, striving after popularity, fear of sinning, mercy, straight forwardness, wisdom, modesty, kindliness, moderation, gentleness, care of speech, sociability, caution, studiousness, reverence for old age and old customs, humility and gratitude, benevolence and attention to business. (Nevaskar 1971: 157-59, Caillat 1987: 509) Mahavira recognized a two-fold training – one for monks and another for laity for the achievement of moksa. The laity also take five vows which are known as anvratas (lesser vows).These are milder in nature in comparison to the five great vows of monks. The Jain monks were directed to renounce everything, while the laity was to renounce the world in principle only. The laity are encouraged to the practice of continence in opposition to the absolute renunciation required of monks.

Economic Ethic

Yogendra Sings says, "Jainism was mainly confined to the trading community, its emphasis on non-violence prevented agriculturalists from entering into its fold. Cultivation of land involved killing of insects and was prohibited in Jainism"(1988: 45). But

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Schrermerhorn calls it a long-standing misconception (1978: 105). Citing in his favour the life style of Jains in Karnataka and a considerable number in Gujarat, who are chiefly farmers, Schrermerhorn rejects the deductive argument of Jacobi as unsound (1914: 104). Sangave seems to fall in line when he says, "We come across numerous references pertaining to agriculture in Jaina literature from which it could be seen that in general agriculture was not forbidden to Jainas" (1980: 259).

However Nevaskar holds the view that though agriculture was permitted by the first Tirthankara, this was eventually regarded as permissible only as a matter of expediency and only as a last resort and a Jain who takes up such profession will be in the vow-less stage of soul evolution (1971: 206 n.2). Noss regards the mahavrata-ahimsa, which passionately discouraged the taking of life a creature and to take any occupation involving the taking of life as the most important in its socio-economic impact on Jains. He asserts:

> It constituted a limitation that must have seemed serious to the early followers of Mahavira, but at long last it actually proved to have economic as well as religious worth, for, the Jains found they could make higher profits when they turned from occupations involving direct harm to living creatures to careers in business as bankers, lawyers, merchants and proprietors of land. The other moral restrictions of their creed, which prohibited gambling, eating meat drinking wine, adultery hunting, thieving, and debauchery earned them social respect, and thus contributed to their survival in the social scene (1956: 152).

Jain philosophy is pluralistic, recognizing no line of demarcation between the creator and the creation. A Jain is expected "to work out his own salvation" but in all humility must admits that it is God who works in him " both to will and to do of His good pleasure" (Sangave 1980: 170). Besides ahimsa, the laity was expected to limit its possessions. Personal effects were to restricted to necessities. Possessions of riches beyond those necessary for existence was considered detrimental to spiritual growth. As Jainism later developed, the acquisition per se of considerable wealth was in no way forbidden, but only the striving after wealth and attachment to

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riches. Weber compares this with the protestant idea that "joy in possessions" (parigraha) is objectionable, not possessions or gain in life" (Gellner 1982: 1534).

Asatya tyaga (vow not to lie) forbids saying anything false or exaggerated and so Jains strived for absolute honesty in business. All deceptions were prohibited (aseta), especially, all dishonest gain through smuggling, bribery and every sort of disreputable financial practice (Nevaskar 1971: 197-98). Since 'attention to business' was one of the twenty-one qualities ascribed to Jain laity, not only was the honesty of the Jain trader famous but also the wealth accumulated by Jains.

The religious vow demanding the restriction of travel (digrirati and desavirta) for ritualistic reasons encouraged Jain laity to concentrate in resident trade. This seems to have influenced them to take up banking and money-lending. Further, the strict methodical nature of their systematized way of life proved very helpful to the Jains in accumulating wealth. Nevaskar argues that the systematic way of life allowed no freedom to a Jain to squander his wealth. "At the same time, the warning against naive surrender to the world – to avoid entanglement in karma through rigid, methodical self-control and composure, through holding one's tongue, and studious caution in all life situations – helped the Jains to further accumulate wealth" (1971: 199).

The uncompromising attitude towards the doctrine of ahimsa and ritualistic restrictions on travel made migration to cities as the most natural course to follow. Thus the Jains became successful bankers, money lenders, merchants selling jewelry and clothing and in grocery, business and in industries. Basham expresses the same in the following words. "Jainism encouraged the commercial virtues of honesty and frugality and at a very early period the Jaina lay community became predominately mercantile" (1954: 293).

There are two notable differences between Weber's Protestant ethic and Jainistic ethic. While in the former the motivation for success is the for glorification of Transcendent God through the advancement in one's calling, while in the latter it is the desire for moksa deeply molded by ahimsa. Second, all vocations are of equal value for the former while the latter offers an index of profession – nearly fifteen varieties of business enterprises – that are to be

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avoided.

Struggle as a Group for Economic Primacy

Emphasizing the affinity between being religious minority and involvement in commerce, Weber says, "National or religious minorities which are in a position of subordination to a group of rulers are likely, through their voluntary or involuntary exclusion from positions of political influence, to be driven with peculiar force into economic activity" (1958a: 39). However, it must also be stated in unequivocal terms that the functional relationship between the loss of social approval and the urge for economic development is neither ubiquitous nor central to the growth process. All the same, Christopher Bayly's reason for the close affinity between Jainism and commerce certainly sounds very reasonable. He remarks that this affinity "may have been an artifact of the loss of paramount power by Jains in the North to Muslims and in the South to Saivites. This is consistent with their struggle as a group for economic primacy against other groups" (Carrithers 1991: 167).

Structural Advantages

Apart from their religio-ethic and the achievement-need syndrome, Jains seemed to have had other initial advantages. Their family structure was mostly of joint family pattern which greatly avoided the division of property and provided them greater accumulation of wealth and consequently a greater capacity for investment.

Yogendra Singh points out that Jainism was particularly an urban movement and this also had its share of contribution in the emergence of a new mercantile castes in urban centers (1988: 193). It is worth noting that Jains are more urban than rural: 59.83% of the total Jain population (1971 Census) is urban. Indeed among the religious minorities of India, they are the third most highly urbanized community after Parsis and Jews (Schrermerhorn 1978: 102). Commenting on a type of common religiosity among Puritans, Jains, Parsis, Jews and the commercial groups in Islam, Loomis and Loomis comment: "There seems to emerge in Weber's examination of religious origins the conclusion that an urban setting led to the movement away from the ecstatic trance or dream and toward the

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development of everyday piety and mysticism" (1969: 125).

Renouncement and Pompousness - A Dazzling Paradox?

Reynell, pointing out the glaring contrast between the goal of non-possession of wealth and the luxurious state of temples and shrines and emphasis on renunciation and austerity preached in those temples, highlights in her article the seeming paradox between, "the strictly ascetic renunciatory spirit of Jain doctrine and the opulence and wealth emphasized in its practice" (1985: 10).

To cite an illustration fresh from memory: Atul Kumar Shah's, son of Jain multimillionaire in Gujarat, renunciation of material wealth for solace in spiritualism in June 1991 cost his family a grand total over Rs 150 crores. Nearly Rs 20 lakh were spent on the 5000 calendar size invitation and each invitation was decorated with a 50 gm silver coin worth Rs 300/-. Gold and silver coins, pearls and diamonds scattered by Atul Shah during the cavalcade was estimated to be Rs 2 50 lakh. In the midst of all pomp and show questions of disapproval were raised: What was the necessity for such a show to celebrate renunciation? (Mahurkar 1991: 112-13).

There have been several attempts to solve this glaring paradox. Jonathan Parry is of the view that there is a natural affinity between ostentatious wealth and the ostentatious renunciation undertaken by Jain ascetics. It appears that this natural affinity seems to be based on the popular Jain belief concerning the value of wealth. Wealth is according to Jainism, not a sign of spiritual corruption but a sign of spiritual blessing. Gordon Johnson seems to agree with Jonathan's interpretation, when he remarks that the expensive public festivals and street processions of Jains help to establish and reconfirm Jain identity in the complex and turbulent urban world. Hence this popular Jain belief concerning wealth has to be viewed within their dominant identity: Merchant identity (Carrithers 1991: 17).

There is no canonical injunction against public performance of arms-giving and the Jain literature on dana (charity) proclaims arms-giving in public as a means of encouraging others to be even more generous. Muni Hitruchiji Vijayaji's defense of Atul Shah's glorious extravaganza falls in line here, "My idea was to project the importance of renunciation. The idea was to inspire other millionaires" (Mahurkar 1991: 113).

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Another attempt to explain this Jain paradox is that no religious institution can survive without the laity being involved in an active way. If the laity renounces all their wealth, then the institution cannot survive. The essential concomitant of a begging wanderer is a non-wandering donor, whose generosity enables the ascetic to live. Hence without dana there could be ascetics, no transmission of the doctrine. Viewed from this perspective, it amounts to say, the more ostentatious the giving, the more community minded is the giver (Carrithers 1991: 36-38).

The paradox is also explained away through duality in the ethical conduct in Jainism. William explains that there is no correspondence between the fifth mahavrata of the Jain mendicant and the fifth a'?uvrata of the Jain layman, although both are called aparigraha-vrata (non-attachment to worldly things). Norman argues: "Since the whole structure of the begging community would be undermined if they were the same, the interpretation of the vow for laymen has necessarily to differ from that adopted for monks" (Carrithers 1991: 37). This line of argument underlines Jaini's explanation of aparigraha (1979: 160-87). He argues that renunciation is a reasonable interpretation of the vow aparigraha for a monk who has no possessions at all, but it is not appropriate when used for layman. This is clear from the account of Ananda, Jain layman given in the Uvasaga-daso (the seventh a'?ga -a section- of the Svetambara Jain canon), that aparigraha did not mean renunciation but limiting. Hence for layman, aparigraha would mean not clinging to something but in the sense of not believing that it was one's permanent possession. Norman points out further the Jain canon of Mahavira preaching a sermon to the monks about the rule which they must follow, while the absence of corresponding sermon for laymen is conspicuous(Carrithers 1991: 33). Finally a more pragmatic explanation would not be out of place. An unavoidable gulf between precept and practice is perceived in all religions.

Conclusion

In the precept and practice of Jainism one notices the linking of ethical code of religion with systematized way of life leading to a rationalization of economic activity. However, on the one hand the importance of ethical code of religion with its emphasis on asceticism

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in producing and legitimating the capitalist spirit among Jains is acceptable but on the other it is equally important to note that they also had certain structural (family pattern) and situational (geographical and achievement-need syndrome) advantages in their favour. Hence it is reasonable to hold that Jain's economic advancement was exclusively caused by their religiosity nor their religiosity was neither exclusively caused by their economic practices. But, obviously, it is beyond any question that these two components are closely related. The author of this article shares the opinion of Don Martindale that this linkage seems "to have developed in a spiral of mutual reinforcement over time, increasing the solidarity and effectiveness" of Jains within the Indian World (Nevaskar 1971: xx).

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Essays on Germanic Religion

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The Changing Face of Karamtoli (Ranchi, India)

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Karamtoli is a *tola* or division of the traditional Munda tribal village of Hatma[1], in the state of Bihar. It appears in the half portion of Sheet No.3[2] of Ranchi - 200. It is situated in the midst of Nagratoli, Chadri, Morabadi, Bariatu. Karamtoli is bordered on the northwest by Booti Road and Morabadi, on the west by Radium Road, on the southwest by Chadri, on the south by Adibasi hostel and Nagratoli, and on the east by Bariatu and Kokar. It is one kilometer from the Deputy Commissioner's Office, Ranchi, and is in Ward 18.

Karamtoli of Hatma Village

Karamtoli was a tribal *tola* of the Hatma village and the name *Karam*toli refers to the Karam tree, symbolic of the tribals' love for forests[3] and nature[4], as evidenced in other tribal villages of Chotanagpur. Karamtoli still possesses about fifteen, old (70 and 150 years) large tamarind trees, and the presence of fruit trees also reflects the earlier rural character of the village. With the passage of time, Lohra, Hirdha, Ahir, Kurmi and Teli etc., settled in the village to utilize the agricultural opportunities present in the neighborhood.

In 1932 the Revisional Survey of Khatian-holders and tenants

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[1] According to Sri Bhairam Munda (age 83) of Nivaranpur, Ranchi, the village name was formerly Hatma, derived from Haturnan ("Bamboo village").

[2] See Regional Survey Map of 1932-33, Ranchi 200.

[3] The various villages/tolas in and around Ranchi are named after trees, i.e. Tiril, Hesel, Madhukam, Soso, Adelhatu, Lowadih, Jojo Tola, Putkal Tola, Dau Tola, Sarna Tola, Sirum Toli, Gungutola .

[4] Published book by Dr.B. P. Keshri, Chhotanagpur Ka Itihas. p. 105, Ranchi, 1979.

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showed only 200 families in Karamtoli, and the elders[5] of Karamtoli confirm that there was a thin population in the tola until 1960 and that the identity and character of the village was then still traditional.

The Mundari Language

The mother tongue and common language of this tola was Mundari until around 1965-70, although some of the residents knew Sadari also. Only the service men (men drawing regular wages, employed by commercial or industral firms) of this tola understand Hindi, and a few newly married women and new migrants understood Kurokh[6]. But today the youngsters (below the age of 13 to 15) know Mundari even though they talk mainly in Hindi.

Customs of the Village

Until some 40 years ago, the customs of the village were followed more strictly than they are today. The residents lived disciplined lives. They were culturally united and tried to understand each others' attitudes and problems. They respected the need to work for the good of society and the village. The most important festivals, customs, and traditions of this small village are Ba Parab (Sarhul), Buru (Yatra), Akhra, Rog Chalu gidi, and Ukhaasan.

Ba Parab (Sarhul)

The Ba or Sarhul festival is the most important to the Munda and Oraon tribals of Karamtoli. It is celebrated in other parts of Chhotanagpur and the Santhal Parganas and also in the adjoining tribal areas of Bihar, Bengal, Orissa and Madhya Pradesh. Traditionally the Ba or Sarhul festival was celebrated over three days, namely:

> Chait, Lelo chandu api ma re Hai-Karkem – the third day after the appearance of the new moon in March and April, when a fishing ceremony is celebrated.

---

[5] According to Shri Sohral Munda (age 64), Sukra Hawaldar (age 85) and Shri Krishna Toppo (age 75).

[6] The language of the Oraons.

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Upum ma re sure sagin – the fourth day after the new moon, when flowers and new leaves are brought from the neighhouring forest.

More ma re Ba – the last day of the Sarhul Festival, when a cockerel is sacrificed.

The philosophy of the festival is symbolic. By custom, the members of the village seek to protect the natural environment and the forest. They psychologically unite, in adherence to the ancient customs associated with this goal, to refrain from the following activities during the festival: cutting Sarna and Chandi trees, ploughing fields, and digging the earth. A small bowl of rice beer is offered to the old men by their younger relatives, thus uniting the generations. They are also serve rich food to their elders during the performance of the festival.

Today, however, due to modern influences and urbanization, the younger residents of Karamtoli are forgetting the traditional songs and dances. They have begun to dance to disco music instead, and to sing songs publicized by the cinema films. Thus they are forgetting the traditional culture. The youngsters no longer feel shame to drink before their seniors. Thirty years ago they respected the elders and refrained from drinking alcohol openly and in an uncontrolled manner. In fact as a result of education and influences from outside, the tribal peoples of Chhotanagpur who live in Ranchi usually celebrate the Ba festival for only one day.

Phulkhonsi (Ba Harsad)

On the last day of Sarhul festival, the Pahan (Priest) of the village customarily used to visit each family, accompanied by group dancers and drummers, to put a bunch of Sal flowers on the house. The concept of Phulkhonsi was to assemble the village people in this cooperative and pleasurable festival.

But today at Karamtoli, the Pahan is no longer expected to conduct Phulkhonsi at the houses of the Professor Colony.

Akhra

In the middle of Karamtoli, there is a traditional dancing place called "Akhara", shaded by a big tamarind tree. All the Mallaha

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(people) came to the Akhara on the Sarhul, Karam and Buru (Yatra) festivals to dancing, singing and make merry. The Mahalla-people of Karamtoli used to dance and sing here in their traditional way of life. But today some dance in their own courtyards and also in the Karamtoli Chowk, where they use loud-speakers and taped music. On festivals they also dance in accordance with the dancing they see on films, which shows the changing pattern of culture among the younger generation.

Ukhasasan

Towards the east border of Karamtoli, there is an Ukhsasasan of the Masna dhipa of Karamtoli which is called Masna dhipa today. This is an important cultural ceremonial and burial place of the Mundas of Karamtoli. At Ukhasasan they perform ceremonial functions which include the setting up of a stone in the names of their ancestors.

Like the other Mundas of Chotanagpur, all the male and female Mundas of Karamtoli participate in the ceremonial function of Ukhasasan, which unites them as a community. But formerly the male and female members of Karamtoli both also used to participate in the burial ceremonials, which also helped to preserve community ties in the tribal villages of Chhotanagpur.

Rog Chatu Gidi (Discarding old utensils and garbage)

In the months of April and May every year, the pahan[7] used to leead the residents of Karamtoli in the celebration of Rog Chatu Gidi. They villagers contributed money to purchase a black she-goat black for sacrifice. The relative roles of the men and women were as follows:

figure 2

Role of male members

On the fixed day the male members used to go to the border area of the village early in the morning with the pahan to sacrifice the

[7] The *pahan* is the title of the village priest in Munda communities.

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black she-goat. They anointed it on its forehead with vermilion and Arwa chawa (a kind of rice), and then paid worship to Sim Bonga (the Supreme God) and the other deities with the following words:

(i) Mar sirma-ren sim Bonga (Oh! Sun God) Bugi Gele tayo rah
(We pray to you for our happy life).

Bugi Gele powa kan posa-kan posa-kan
(With your kindness give us healthy child).

Jan Rog, Duhm, Hasu, hiju-re, hijakan
(If there comes any kind of disease, please remove it or Remove the disease, that has come).

Am gele jagar tan
(We are asking you to remove it).

Am gele jowar tan
(We all, pray to you).

Am gele gowari tan
(We all, request you).

(ii) Sirma-ren sim Bonga
(Oh! Sun God)

Hisinga-hipsinga, ale-re aloka-tain
(Drive away the jealousy from us).

Hon-gara re-aloka-tain
(We request you to throw out the
things like jealousy, from our coming generation).

Am gele jowar tan
(We all, pray you).

Am gele gowari tan
(We all, request you).

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Dub-re, jaru-re, ayar-tele sene-ka ayar tele, rakab-ka
(We all proceed towards the development
that unites us and encourage to know each other's problems).

(iii) Mar sirma-ren, sim Bonga
(Oh! Sun God)
Tising dole, aman-ra
(We invite you to remove the disease by sacrificing a goat).

Saku te, Rasika te, Jomeme
(Kindly accept our sacrifice with pleasure).

Duko ko, Edei-giri me, thapa giri me
(Kindly remove the disease that has come from others or kindly do not allow the disease to enter our village).

Am gele jowar tan
(We all, pray you).

Am gele gowari-tan
(We all, request you).

Role of Females

The women and girls of the village used to collect useless old utensils and the other trash to throw out of the village. Today the young people of Karamtoli no longer practice this tradition, although in the interior Munda areas of Chhotanagpur the tribal peoples still observe this custom with enthusiasm.[8]

Utility of this Tradition

This tradition was important for health and hygiene, because on the eve of this function, the villagers cleaned the village and the houses.

[8] The younger females of the village undress the older ladies in a sequestered place in a joking relationship. At that time the old ladies also try to undress the youngsters.

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Worship of the Village God (Hatu Banga or Gram Devta)

Before starting marriage ceremonies in Karamtoli, villagers collected money to purchase three chickens (red, white and brown) for sacrifice to the village god, so that the new couple would enjoy a good, peaceful and healthy life. On the fixed date the pahan collected Arwa Chawal and vermilion etc., from the village people to offer to the village god. He then sacrificed the chickens in honor of the god.

In accordance with the custom of tribal Bihar, the villagers used to approach new settlers (non-tribals) to join them in making these fruitful gifts to the village god. But here at Karamtoli, due to class and cultural differences, they are not able to attract the more highly educated non-tribal people. The newcomers also do not try to show reverence for the village god.

The community today lacks an environment in which its members can come to know each other.

Saki (Name-giving ceremony)

Saki is the traditional unwritten media to preserve the names of their ancestors and relatives. This ceremony is held on the eighth day after a child's birth. Villagers, bhayads (consanguineous relations) and other close relatives are invited into the house of new born boy to witness the selecting of the child's name by his mother. This is done in the following manner:

A brass thari or plate is filled with water and a first grain of rice is dropped into it. Then another grain of rice is dropped into the water while the name of some chosen ancestor or other relative is pronounced. If the second grain meets the first grain, which represents the baby, the baby is named after that ancestor or relative. If, however, the second grain sinks to the bottom without meeting the first grain, the process is repeated until a grain of rice thus dropped meets the baby's grain. In this way names common to the family are chosen and older generations are remembered.

Ringing a Plate or a Tin at Childbirth

Here at Karamtoli, at the birth of a new baby, a plate or a tin is struck to make it ring. The philosophy behind this custom is to habituate the baby to the new environment. Some that by beating and

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ringing the plate the baby is given the opportunity to identify with its environment from the moment of birth.

Food Habits

Traditionally the members of Karamtoli used to eat Da-Madi (Mar Bhat)[9] withdal (pulse) or, sabji (vegetable). Gradually food habits began changing – around the 1960s – according to the old men[10], and today the poorest eat dried rice with one pulse or vegetable – although the older men of Karamtoll still like to eat Da-Madi in the summer. Many youngsters also still eat Da-Madi in the heat of the summer season.

Marriage distance

The Tribal people of this tola used to marry in and around Ranchi, at a distance of 10-15 kilometers, i.e. within the villages of Hehal, Purani-Ranchi, Kanke, Soso, Konge, Kamta, Jaipur, Lalpur, Rampur, Gungutola, which cooperated with each other. But today educated tribals often marry into more distant villages, up to a distance of 30-70 kilometers.

Memory and Experience of the Old Men[11] of Karamtoli Regarding Marketing on the Karamtoli Road

People of the Karamtoli used to go to Ratu Road daily market and to the Upper Bazaar on Saturday for marketing. The Circuit House/Karamtoli Chowk Road was not busy. In 1950-55 the road was deserted, with only three or four persons to be seen on it at one time. Nobody sold goods on the Karamtoli Road. Once a gamchcha (a towel) of Budhwa Khalxo and some coins of Sohrai Munda fell onto the Karamtoli Road. Half an hour later they returned to search for their belongings and found that their possessions were still lying there. However, the situation is different today. Today the Karamtoli Road is very busy. Each moment motor

[9] Boiled rice without the water.

[10] According to Sri Kaila Toppo (aged 70) and Sri Lohra (aged-65), etc.

[11] According to Shri Budhwa Knalxo (aged 65 years), Shri Soma Toppo (aged 65 years) and Shri Soyhrai (aged 64 years), etc.

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cars, trucks, motor-bicycles, cycles and rickshaws pass along the road. There is a daily market of vegetables and other goods on the road which is now close to an inhabited area (Akhra Kochcha).

Today there are more than 150 small shops in Karamtoli, of which around a hundred are situated alongside the roads in and around the Karamtoli Chowk (Karamtoli-II). These include barber-shops, washerman's stalls, meats, medicines, cobblers, tailors, tire repairers, battery-chargers, electric wiring, furniture, books and stationary, and sweet shops.

Group Responsibilities

About 40 years back the people of Karamtoli were peace-loving and honest, so that as in the previous years there was no need to lock up their houses and there was a feeling of brotherhood and cooperation. In the event of epidemics such as chickenpox, smallpox, cholera, etc., they followed the tribal customs strictly, refraining from eating meat, fish, egg, oil, chilies, onions etc., and refraining from singing or dancing. These restrictions have disappeared now. Today only the sufferers and their neighbors follow these customs strictly. Thus we find a change in the mentality of the people.

Population Growth

Most of the people of Karamtoli were formerly dependent on agriculture and casual labor, i.e. Barai, Raj-mistri, garage-mistri, etc. But today, due to the establishment of the National Coal Development Corporation, and heavy engineering factories such as Hindustan Steel Ltd., as well as other enterprises, including a University,[12] the vastly increased population of Ranchi city has led to the establishment of Ranchi Municipal Corporation. The growth in the population can be seen by the figures on the next page.

The fact is that large numbers of non-tribal peoples have settled in Karamtoli. The preent-day population is documented and are classified according to their respective origins in the Voter's List of the Ranchi Assembly Constituency (306) Part-103 to 106 (Karamtoli) dated January l, 1995.

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[12] See L.P. Vidyarthi, Cultural Configuration of Ranchi, 1969.

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Census Year	*Population*	*Increase*
1901	25,970	
1911	32,994	7, 024
1921	39,628	6,634
1931	50,517	10,839
1941	62,562	12,045
1951	106,849	44,237
1961	122,416	15,567
1971	177,934	55,518
1981	489,626	311,692
1991	598,498	108,872

Education and Occupation

Gradually the educational status of the tribal people of Karamtoli is also changing, and the educational level of the younger generation is higher than that of their parents. Thus most of the people today are engaged in work that utilizes their education, although some are retired from government jobs and are dependent on their pensions and agriculture. The less successful rely for their living on rickshaw pulling and daily labor. Some of the residents of Karamtoli occupy high level positions, and out of twenty families surveyed we find:

a) Doctors - 2
b) Engineers - 4
c) Bank Managers - 1
d) Gazetted Officers - 2
e) Lecturers - 2

The Present Condition of Karamtoli

Today Karamtoli is today chanaractistically urban in its complexity and is divided into the following zones:

1. Karamtoli - I (including Ahir toli)

This has been subdivided into five tolas (parts):

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(a) Akhra Kochcha -

Except for a few families all the residents are tribals in this zone and are the original inhabitants of the village. All the houses are kuchcha (i.e. houses built with mud-walls). Excepting only a few, most of them have no latrines or bathrooms. The residents cook their food on fires of wood, cow dung, leaves, or sometimes coal. Only eight families use gas cylinders to cook food. In and around the Akhara Kocha, the Toppo and Minz families have five puccha (well-built) houses. The house of Vijay Pahan, the traditional priest of the village, stands near the Akhara. It is constructed of mud walls with a tiled roof. The Congress Party office is located at the entrance to Akhara Kochcha. Also in this location are the houses of three Bhagtain or Ojha (diviners). Mangra Tirkey, his wife, and the wife of Doman Oraon are the respected diviners of this village.

(b) Middle Karamtoli, or New Colony -

This is the area adjoining the residences of the tribal and non-tribal families. The houses of the non-tribals are puccha (solidly built). All of them are equipped with their own latrines, bath-rooms and have gas cylinders to cook their food. The last area (towards the West) of Middle Karamtoli is adjacent to the Akhra Kocha. Thus the house of Lohra Tirkey is attached to that of the house of the retired Professor, P. N. Ojha, and the house of Kaila Toppo is attached to the house of the late Jagdish Verma. According to the statements of the members of these families, even to-day they do not quarrel with each other. Tribal families are poorer and their economic condition is more miserable when compared with the non-tribal families. Tribals in the adjoining areas work as laborers, Dai (maid-servants), and rickshaw pullers. Middle Karamtoli New Colony is older than Professor Colony. Today there are two private primary schools, classes being held in the house of Laxmi Narayan Babu and Baneshwar Manto.

(c) Professor Colony :-

The members of the Professor Colony are the newest settled (1978-) and comprise highly educated families, nevertheless the Professor Colony has ties with the tribals of Akhra Kochcha. Since the year 1991, the residents have appointed two night watchmen

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jointly with the members of New Colony. For this they collect Rs.15/- from each family, although householders pay Rs.30/-.

(d) Berga CoIony:-

Berga Colony is another new development in Karamtoli, being located on the land of Berga Munda, dating from 1982-84. With few exceptions, all the families living here are non-tribals who are engaged in a variety of different occupations, such as contractors, servicemen, carpenters, and businessmen.

(e) Lower Karamtoli (including Ahir Toli) :-

With few exceptions, Lower Karamtoli is occupied by newly educated migrants (tribals and non-tribals) from the neighboring districts of Chhotanagpur and Santhal Pargana. The residents of Lower Karamtoli have their own organization called the "Lower Karamtoli Vikas (village) Committee". Its purpose is to promote development, preserve peaceful relations, and protect the interests of the Mahalla. There are sixty members of the committee, who meet once a month on Sunday, or as required by the people of the Mahalla.

2. Karamtoli II, or Upper Karamtoli :-

Upper Karamtoli is the older part of the village, although there are a number of migrant families. There is a recognized Government Middle School, which is actually the oldest school of the village, and two nursing homes (i.e. the Agrawal Nursing Home and the Chhotanagpur Nursing Home). It also contains several private clinics run by Dr. Raghaw Saran, Dr. Gita Sinha Manki, and Dr. P. K. Das, who have erected their houses-cum-clinics near Karamtoli Chowk. There are also about 30 small shops selling sweets, medicines, stationary, and electrical goods etc. This area is more developed than that of the Akhra Kocha.

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BOOK REVIEWS

Crime as Destiny: A Study of Criminal Twins
J. D. Lange (translated by Charlotte Haldane)
Scott-Townsend Publishers, Washington D.C., 1996
ISBN 1-878465-21-X. 199 pps, $18.00

This is a valuable and timely reprint of an important work of pioneering importance to research in both twin studies and criminology. It represents a work first published in German in 1929, and subsequently translated into English by Charlotte Haldane, with an enlightening Foreword by her husband, the renowned J. B. S. Haldane. It is timely in light of the new attention being paid to twin studies as a method of measuring the role of heredity in setting the limits to the behavioral potential of individuals, and also the prevailing debate on the extent to which heredity may be responsible for determining individual susceptibility to criminal influences.

J. B. S. Haldane expresses his enthusiasm for the study conducted by Lange, who was the physician in chief at the Munich-Schwabling Hospital and Director of the Experimental Station for Psychiatry of the Kaiser Wilhelms Institute during the 1920s. He warns readers not to misunderstand the "Crime as Destiny" sub-title, pointing out that Lange also takes care to stress the fact that heredity only shapes the inherent aspects of personality, and that it is the combination of heredity and environment that determines individual behavior.

Lange analyzes the case histories of thirteen pairs of twins, portraying these in what Charlotte Haldane approvingly refers as his "unusual gift for racy, descriptive narrative" which she asserts is made even more attractive by "the additional fascination of truth." Her husband, J. B. S. Haldane declares Lange's pioneering study to be "a masterpiece." Haldane himself held to the position that every action has its set of causes – that there was no such thing as freewill in humans. "We have got to reshape our attitude to evil," he declares, "Lange will lead us to realize that every evil has a cause .... Taking the record of any criminal, we could predict the behavior of a monozygotic twin placed in the same environment. *Crime is destiny* ...

The Mankind Quarterly

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no one in our generation has done more to dispel that darkness (ignorance of causality in human behavior) than Professor Lange."

An additional bonus to this 200 page book is Kevin Lamb's introduction to the current text, which concisely traces the history of subsequent research into the relationship between heredity and criminal behavior, citing key publications on this topic.

Images of Contemporary Iceland: Everyday Lives and Global Contexts
Edited by Gísli Pálsson and E. Paul Durrenberger
University of Iowa Press, 1996, 274 pps. $29.95

Iceland tends to present an image of a homogeneous island population with a long and well recorded history – an apparently ideal subject for anthropologists looking for neat boundaries, a self-contained culture, and a natural laboratory. However, in the contemporary world of shrinking global distances all this is changing, although the rate and extent of change may be slower than in many other Western countries.

Focusing on Iceland's shifting present, not its past, the contributors in this volume look at the forces bringing about these changes: the chaotic flow of images and identities in the global context, cultural constructions of gender and landscape, the politics of custom and history, and the plurality of viewpoints.

In these essays we hear the multiple voices of age, gender, class, and locale as they move through the landscapes of domestic crises, environmental concern for the geographical heritage, the impact of tourists, the economic influence of fish-processing plants and other industries, the modernization of politics and the effects of the electronic media.

The eleven essayists in *Images of Contemporary Iceland* emphasize the importance of assessing the experiences of living people. They show little interest in the Iceland's past, and this is a methodological error, for the present can only be understood if its causal history is understood. However, they correctly see modern Iceland as a laboratory for the study of change which can be conveniently placed under a microscope, so small is its population.

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The Invention of Primitive Society
Adam Kuper
Routledge, 1996. ISBN 0-415-00903-0. 264 pp. $18.95

The Invention of Primitive Society shows how earlier anthropologists sought to define an "original form" of human society. Stimulated by Darwin, they appreciated the evolutionary nature of society as well as of living organisms, but failed to dig back far enough to acknowledge the significance of the fact that human society had its roots in primate society.

Early anthropologists from Henry Maine to Lewis Henry Morgan initiated the search, and by the end of the nineteenth century the concept of some kind of "original" form of human society had been linked to the pursuit of the earliest religion. The theory of 'totemism', developed by McLennen and Frazer, claimed to describe the initial state of religion and society. Only then were the first field studies designed to test the theory. These Victorian models were refined and developed by theorists such as Engels, Durkheim and Freud. In the twentieth century they became the basis of academic anthropology, and were subjected to increasingly abstract transformations. But, as Adam Kuper correctly points out, there was no single "original" primitive society.

Kuper tends to over-sensationalize his criticism of the pioneer anthropologists when he argues that their search was illusory and that there is no such thing as a "primitive culture." Social evolution was slow for the early hominids, and human society evolved from essentially primate origins. That there were clearly simpler forms of hominid social organization before culture became more complex is undeniable, and he fails to stress the need to examine mammalian and primate ecology in any search to understand human social evolution. In essence he is correct in saying that there is a tendency for theorists to see the past in temporocentric terms, but misleading in his attempt to deny the concept of "primitiveness" altogether, and his failure to point out that the history of hominid society is the history of one particular, evolving form of primate society.

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